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ON A HORSE DISEASE IN INDIA KNOWN AS "SURRA," PROBABLY DUE TO A HÆMATOZOON.

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[The following report, for a copy of which we are indebted to Mr. Collins, Principal Veterinary Surgeon to the Army, possesses much interest when read in connection with, or in continuation of, the descriptions already published of the *Filaria Sanguinis*, as producing disease in man and animals.]

THE name *Surra* is used by the natives to denote anything rotten and is applied by them to a dry rot, such as a withered leaf, and to a moist rot, such as a putrid carcase. The name is thus a very comprehensive one, and is applied loosely to all chronic ailments of a lowering character which have not a specific designation. A native will speak of himself as "*sur gia*" (gone rotten) when he has felt for some time in ill-health, and does not know what he suffers from. The name "Surra" is given to this disease among horses as a distinctive designation, because a withering or falling off in condition is a marked feature in its progress, without any visible lesion, *post-mortem*, to account for it. In England we speak of the "Rot" in sheep, and "Decay," "Consumption," etc., in man, to denote affections characterised by wasting during life.

The disease is different in some important respects from any other that has ever been reported upon in man or beast. It is quite new to science; and, until the parasite which is found in the blood of animals suffering from it is better known and studied, I think it would be wise to retain the name "Surra" to designate

the disease. But though new to science, it is not new in reality; for it has been only too well known to the natives of Dera Ismail Khan district for several generations, as an occasional scourge.

Geographical Distribution.—So far as I have been able to learn, the disease is not known east of the Indus; but it has an extensive range, I believe, on the west of that river. Major Underwood, 4th Punjab Cavalry, told me he was informed that the 3rd Punjab Cavalry lost 350 horses from Surra, at Arsene, near Rajanpur, a few years ago. Surgeon Haig, of the Indian Medical Department, who took a great interest in my investigations at Dera Ismail Khan, informed me that he noticed a disease among the horses in Persia in the autumn of 1876, which had all the outward symptoms of Surra, and he was told it was always fatal. The Persian horses fed there upon chopped straw, and had very impure water to drink from irrigation channels, etc., such as the horses of the district of Dera Ismail Khan have.

Definition.—A specific parasitical, inflammatory, enzoötic blood disease, characterised by Fever, with Jaundice, petechiæ of mucous membranes, especially of the eye and vagina; Dropsy; albumen sometimes in the urine; great prostration of strength; rapid wasting; and with a specific parasite in the blood during life, but no characteristic structural organic lesions found after death. It may be transmitted by the subcutaneous injection of blood, and drinking fresh blood containing the parasites alive; but it is not contagious or infectious in the ordinary way. The average duration of the disease is probably not less than two months, but reliable statistics are wanting upon that point.

Symptoms.—The symptoms of Surra may be divided into those common to other maladies, and those which are more characteristic of itself. The invasion of this disease, when acquired in the ordinary way, is that common to all low fevers. Thirst is more or less abnormal, appetite capricious, coat staring, action sluggish, occasionally stumbling on the front limbs, or dragging the hind legs on the ground. The sowar notices his horse to be out of sorts; but as the animal is not very ill, he does not report him sick. He gives him some spices and butter, and continues to ride him, until at last the animal can no longer carry his rider safely. He then takes him to the sick lines for the examination

of the salootri, who finds the fever more or less high at this stage, depending upon the amount of work the animal has been doing the previous few days. The pulse is elevated, mouth hot; sometimes the breath smells badly; slight catarrhal symptoms, the eyes weeping, and often there is a discharge from the nose of mucus more or less tinged yellow. In a small proportion of cases the submaxillary glands may be enlarged and tender. In a large proportion of cases the legs are swollen; the salootri presses the swelling with his fingers, and finds it pits; sooner or later a similar swelling is found between the fore legs of mares, or at the sheath of horses, and the animal is dropsical. He refuses food, there is great thirst, and the urine is high-coloured. The swelling of the legs, etc., with the feverish symptoms, arouse the suspicion of the salootri, who then everts the eyelids; and if he finds the conjunctival membrane of a decidedly yellow colour, often a dirty yellow, with claret-coloured spots on the eyelids, or, as is most common, on the *membrana nictitans*, at the inner corner of the eye, which the salootri projects by the pressure of his finger for examination, then he has no hesitation in declaring that the animal suffers from "Surra." In the case of a mare, he opens the labia of the vulva, and if he finds the mucous membrane of the vagina decidedly yellow, with the petechiæ even more marked than in the eye, his diagnosis is confirmed. If the sowar be now questioned as to how long the horse has been ailing, he can hardly ever tell; his answer will be vague and indefinite; so that it is not possible to fix the duration of the disease exactly in any of these cases, and the reckoning is afterwards made from the date of admission on the sick report. The duration of the disease before that has depended, as a rule, upon the amount of work the horse has had, and upon the previous condition and constitution of the animal—weak animals succumb soonest. In a few days after admission on the sick list, owing to rest, the activity of the fever subsides; pulse lowers; temperature becomes normal, so far as the hand can recognise; the appetite returns, though it remains more or less capricious. With regard to grain, the grass is usually all taken, but thirst continues excessive. The colour of the urine, as a rule, becomes normal, and the dung also. I did not find the dung in any case

abnormal; but I was told by the salootri, who laid great emphasis upon it, that the dung balls are sometimes coated with mucus, having reddish patches. He showed me one of these: it was what we often find in health. I mention this here, for the benefit of the frontier officers who may read this report, that they may not be misled. The progress of the disease is variable. It is often marked by an increase of the dropsical swellings, which, however, sometimes subside, and again return worse than before. I have seen some cases in the last stage without any swelling, though it had been present. The yellowness of the mucous membranes, or Jaundice, and the petechiæ, remain throughout, though they are variable in intensity. In a few cases the swelling of the submaxillary glands which I mentioned, will develop into an abscess, with a thick gluey mucus discharge from the nose. I discovered no other glands in the body enlarged before or after death, and I found no sign of ulceration of the nose or tubercle in the lungs, etc. In some advanced cases the urine is passed frequently, and appears to be much more than normal in quantity; but I was not able to measure it. The most constant and invariable symptom in the progress of the disease, is the wasting away of the flesh; and this is the more remarkable, seeing how much the patient eats, and apparently with good appetite. The wasting or withering away goes on more rapidly in some cases than in others. The records of the 4th Punjab Cavalry show an average duration of forty-three days after the *admission* on the sick list. Whether they die early or late, they survive until they are reduced in condition to mere living skeletons, clothed with little but skin—most pitiable objects to look at. There is often much anæmic palpitation of the heart in the last stage; the sound can be heard a little distance off, and the membranes become blanched. Some cases at last drop down and die suddenly, perhaps when they are eating and enjoying food; others become delirious, and struggle on the ground as if in pain; while other cases linger for days after they are down, too weak to rise, or to stand after they are helped up, but go on eating all the grass they get and much of the corn, until at last they die without pain, passing away gradually.

Such are the symptoms which any intelligent observer would

notice. For my own more especial observations with regard to the Pulse, Respirations, Temperature, Urine, and Blood, I beg to refer to the Appendices lettered A to I. The first three are records of fairly typical cases of the disease, contracted in the normal way; the other cases I produced, by injecting beneath the skin of healthy animals fresh blood from the jugular vein of a horse suffering from Surra, or else by pouring such blood into the stomach of healthy animals. I made all these observations myself, and noted everything in my memorandum-book at the moment of observation; so I can vouch for their correctness, so far as they go; but I regret exceedingly the incompleteness of these records upon some points of special interest to medical men. The vastness of the field I had to work in, and the richness of valuable facts to be gathered, were more than I could possibly do justice to alone, without trained scientific assistants. I wish I could have carried on my examinations of the urine of the cases inoculated, as I did with the normal cases, to see whether it contained albumen, and whether there was in more than one case any apparent relation between the advent of albumen in the urine and the decrease of the parasites in the blood. I spent so much time every day in studying the parasites in the blood, fearing I could not bring any away to show, that I could not devote myself as much as I wished to the microscopical examination of the sediment from the urine: my eyes would not stand it. I many times looked for "casts" in the sediment of the urine, and failed to find any; but I am not prepared to say none were ever passed, though I believe, if they are passed, it is rarely, for the kidneys all appeared quite healthy, *post-mortem*, excepting in one case, which I could not examine by the microscope. It was my last day at Dera Ismail Khan, and I had too much to do. I had to work with the microscope for many hours a day out of doors at the sick lines, or else in a stable, when the thermometer was 82° within a bungalow, and the sun pouring down its rays through a cloudless sky upon the surrounding bare, sandy ground. Very few investigators know what that means. Moreover, the flies were an additional torment; for when they crowded upon the stage of my microscope, disturbing the vision, soiling the lenses, and swarming on my face, etc., it was not possible to fan them

off without beating and shaking the microscope. The blood which I was examining, or the tissues of the body at *post-mortem* examination, attracted them so; and thus much of my energy was expended in self-control under that provocation.

Post-mortem Appearances.—The *post-mortem* examination I made of those which died from exhaustion revealed no structural disease, and differed from those which were destroyed only in *post-mortem* changes. Owing to the intense heat, I could not make a proper *post-mortem* examination unless I commenced at dawn of day; and, as the horses did not die at a convenient hour for me, *post-mortem* changes would set in before I could examine them. Those destroyed were bled at dawn of day, as the tissues without blood keep better; and as soon as the animal died he was opened, the internal organs removed, folded in cloths, and placed in felted baskets containing ice, where they remained until I was able to examine them carefully, making thin sections for the microscope, etc. In the meantime I first examined the stomach and intestines, opening them from end to end to see the mucous lining and intestinal glands, etc. I mention this because in no other way could a satisfactory investigation, *post-mortem*, be made under such conditions of climate, and also to add weight to the results of my examinations; for I took every precaution in my power to prevent making mistakes. This was the more necessary because of the disease being a new one to me.

There was a more or less abnormal amount of clear serum effused in the peritoneal cavity in all cases, with a slight layer of lymph upon the parietal layer, but no sign of any inflammatory action: it was a simple exudation. I found no abnormal effusion in the pleuritic cavity, but in one case the pericardial sac was greatly distended with fluid. In several cases I found *Filaria papilosa* free upon the mesentery, besides other nematodes, as well as a very small tape-worm, whose character I have not yet been able to determine. I examined the kidneys, liver, spleen, heart, lungs, and the mucous lining of the stomach and intestines throughout, with great care in every case when I had the opportunity, and I am prepared to state positively that this disease is not characterised by any structural organic change: it is purely a disease of the blood. In one case, as I have mentioned else-

where (Appendix C, case 3), the kidneys were pale and sodden-like, but I was not able to examine them by the microscope; and in another the margin of one lobe of the lung was hepatised; but these cases, being so exceptional, can have had no characteristic relation to the disease. In some cases there were petechiæ of the mucous lining of the intestines, similar to what was visible during life in the vagina and on the eyelids. The mucous membranes everywhere were more or less tinged yellow, and often the subperitoneal connective tissue was yellow also; but in no case was the structure of the liver diseased, though in one instance the liver was studded throughout with calcareous degenerations of cestode larvæ, and in two cases I found flukes in the liver, with inspissated bile distending some of the bile ducts enormously.

Mortality.—The records of the 4th Punjab Cavalry show that no case entered on the sick list for this disease has ever recovered. I was told that a few cases have made slow progress in the disease, alternately better and worse for over a year; but they never recovered. This was confirmed by what the natives of the district informed me at the outposts. The per-centages of fatal cases among the horses of the 4th Punjab Cavalry at the outposts, with reference to the numbers of horses there during the two past years, and this year up to the end of September, are as follows:—1878, 33.3 per cent.; 1879, 46.8 per cent.; 1880, 56.4 per cent. The total numbers of horses of the 4th Punjab Cavalry which died during the several years are as follows. The return shows at what posts the horses were placed on the sick list. I have not been able to get the per-centage of those stationed at each post.

Years.	Dera Ismail Khan.	Drabund.	Manghi.	Jutta.*	Girmi.	Kirghi.	Zam.	Tonk.	Total.	Remarks.
1878	7	3	14	—	7	—	9	—	40	Year remarkably wet.
1879	1	33	12	22	4	—	1	44	118	Year very dry.
1880†	2	—	36	47	—	—	—	30	114	Year very dry.
Total	10	36	62	69	11	—	10	74	272	

* Jutta not occupied in 1878.
† Up to the end of September.

Forty-nine horses, more or less affected with Surra, brought in from the different outposts, marched out from Dera Ismail Khan with the 4th Punjab Cavalry on removal to Edwardesabad on the 6th October; one other was shot the same day for being too weak to rise, and six remained behind for my observations. On the 3rd inst. the officer commanding reported to me that, out of those fifty-five, forty had since died, and fifteen remained hopeless. Since that date fifty-six fresh cases had been admitted, out of which fourteen had died, leaving a total of fifty-seven (15 and 42) troopers on the sick list, besides sixteen grass-cutters' ponies Fresh cases were being discovered daily.

Contagion and Infection.—Though I have succeeded in transmitting the disease by the hypodermic injection of the affected blood, and also by pouring the blood into the stomach (*vide* Appendices D, E, F, G, and I), I find no evidence to show that the disease is either contagious or infectious in the ordinary sense. The weight of evidence is to the contrary, as I have mentioned in Appendix K (par. 22), seventy-seven horses of the 3rd Punjab Cavalry becoming affected with Surra at Jutta, from which they all died at Edwardesabad, and did not communicate the disease to others. It is not improbable, however, that those flies so excessively troublesome at Jutta and other outposts, which bite horses so that the blood streams down the legs as if it had been squirted on, do convey the disease from one horse to another by inoculation. It is a fact that the disease does spread mostly at those posts where the horses are closely packed and the flies are in greatest numbers; but those are the posts also where the drinking-water is worst; so that it is exceedingly difficult to form a true opinion upon this subject without further experiments. However, the indications at present are that horses affected with Surra should be kept at a distance from other horses during the season when those flies are common. They were becoming scarce in the early part of October. I obtained two specimens with difficulty. I do not know yet what is their scientific name; they are very large, of a brown colour, and common in many parts of India; the natives call them *Bhura Dhung*, which means a great needle-like sting. There is a common opinion prevailing among the natives of the Dera

Ismail Khan district, that this fly is the cause of the disease. I shall refer to this again, and merely mention it here because I think the fly may sometimes propagate the disease by inoculation, and thus be an item among the causes to account for the spread of the disease more at some posts and in some years than others, though the disease would exist independently of them. When the horses stand close together the fly is able to go from one horse to another before the blood about its mouth is dry; whereas if he had to travel some distance through the dry air, in the hot sun, the virus of the blood would perhaps be destroyed.

Different Animals affected.—The disease is not confined to horses: I found two mules affected with it, and having the same outward symptoms of Surra as the horses, with the specific parasite in the blood. They came in to head-quarters from Tonk outpost. The men in charge had not reported them sick, and said they did not know they were ill. I noticed they were in a much lower condition than another mule which came in at the same time from the same outpost. On examining the mucous membranes, I found them very yellow, with petechiæ, as in Surra horses. There was no dropsical swelling in either case. The temperature in the rectum of the thinner of the two was 103°, pulse 46. On inquiry, I found he had been off his feed to some extent, irregularly, for a month. The temperature of the other mule was 104°, pulse 48. He had refused one-third of his grain the previous two days. On examining the blood, I found the Surra parasite in countless numbers in each drop from both mules. This illustrates how insidious the disease is in its early stage, and how difficult it is to find, from the men in charge, when the disease commenced. If those mules had not been brought into Dera Ismail Khan, they would have been made to work as usual without suspicion of any serious disease, though they were becoming thin.

I was informed that camels are subject to Surra, and that there were several belonging to the 4th Sikhs suspected to be suffering from it. Upon my application to Major Gowan, commanding the regiment, he was good enough, on the 6th of October, to send five of them for my inspection, and allowed me to kill two for *post-mortem* examination.

Camel No.	$\frac{22}{79}$,	aged	8,	on the sick list	21	days.
„	$\frac{41}{79}$,	„	7,	„ „	19	„
„	$\frac{42}{79}$,	„	8,	„ „	26	„
„	$\frac{61}{80}$,	„	6,	„ „	22	„
„	$\frac{8}{79}$,	„	11,	„ „	over a year.	

The jemadar of the camels told me he thought that No. $\frac{8}{79}$ suffered from a disease different from the others, because he had been so long ill, and had never refused food; whereas the others fed irregularly, and lost condition much more rapidly. The five were wretchedly thin. No. $\frac{8}{79}$ was rather thinner than the others. On examining the mucous membranes, I found the first four on the list presented the characteristic appearance of Surra in horses—yellow with petechiæ, but No. $\frac{8}{79}$ had petechiæ without the yellowness. He was more blanched, and his eyes were dry, while the others were lachrymose. Neither of them had dropsical swellings, and I was told they had not had any previously. On examining the blood by the microscope, I found the parasite of Surra in countless numbers, and very active in the first four, but not one in No. $\frac{8}{79}$. I examined many drops of his blood, and failed to find one. He had in his blood what I did not find in the others—the embryos of a filaria which appeared to me to answer exactly to the description given by Dr. Lewis, in his monograph of the *Filaria Sanguinis Hominis:* about ten or twelve were present in every small drop of blood. I did not find these in the horse, except in one case suffering from Surra, with the Surra parasite, when I met with one single specimen of the filaria. I have submitted these to Dr. Lewis, but he has not yet had time to determine whether they are exactly the same as those found in man. He is inclined to think that they are a little different. The urine of each of these camels was quite normal in appearance.

(To be continued.)

CEREBRO-SPINAL MENINGITIS.

BY GEO. REES, M.R.C.V.S., ASH-NEXT-SANDWICH.

THE cases recorded by Mr. Daniel in last month's VETERINARY JOURNAL, of the above disease, have induced me to send an account of four cases which have occurred in this practice. Each of them occurred in places widely separated, and were from stables where a number of other horses are kept, but we have not yet had any of the others attacked. The hounds to which the carcases were sent did not suffer from any disease after partaking of the flesh. From two of the cases parts of the spine were brought home, in order to make a careful examination of them; and from them two dogs ate of the raw flesh; but it did not have that toxic effect which the dogs and fowls suffered from at Chelmsford, after having consumed that from the horses which died there.

CASE I.

On the 23rd December, 1880, I was requested to attend upon a cart-horse at Word. On asking the history of the case, I was told he had been at work during the day, and when coming home seemed quite fresh. He fed well after returning, but about an hour afterwards was noticed to be uneasy with his hind extremities, and thinking he was suffering from Colic, he was taken out and led about. He had not been out many minutes before his hind legs became quite useless, and down he went. He made frequent attempts to rise, and would get his fore legs forward, and sit on his quarters for some little time. When I arrived I found the horse in great pain, and at times struggling very much. The pulse was 90 and full; temperature 102°; respiration 49; mucous membranes slightly injected; fore extremities warm, hind extremities rather cold, with warm perspiration over parts of the body. Examination *per rectum* revealed the bladder slightly distended, while the fæces, which I removed, were of normal consistency. I gave him Sol. Aloes ʒviij., Sp. Æth. Nit. ʒij., in warm ale; to be followed in three hours by a mixture of Ol. Lin. ʒxij., Æth. Chlor. ʒij., Liq. Ammon. Acet. ʒiv. I gave him also a warm enema, and ordered warm fomentations to the loins, which

were to be afterwards well rubbed with Lin. Ammon. Co. Had him well covered, and his legs rubbed and bandaged.

24th.—Pulse 95; temperature 103$\frac{1}{5}$°; respiration 56; extremities and surface of body warm. Had passed both urine and fæces. The hind extremities were quite powerless when he tried to get up, but he was able to extend them in a backward direction very freely. Gave mixture of Chlor. Hydrate ʒiv., Tinct. Aconite (Fleming's) ɱxv., Liq. Ammon. Acet. ʒiv., in warm ale Oj.; to be repeated in four hours. Local treatment as on previous evening. Evening.—Symptoms about the same as morning, but the fæces had been passed more freely. Struggled very much at intervals, especially if any one approached him. Treatment same as in the morning.

25th.—Pulse 88; temperature 102$\frac{2}{5}$°; respiration 47; mucous membranes injected. Had fed during the night, and looked a little better. Pressure along the spine caused pain, and when pricked with a pin in the hind quarters sensation appeared to be only partial. Repeated medicine and warm fomentations to the loins. Evening.—Symptoms about the same. Treatment as before.

26th.—Pulse 80; temperature 102$\frac{1}{5}$°; respiration 46; mucous membranes injected. Urine and fæces passed during the night. Mixture as before, every four hours, and hot fomentations to loins.

27th.—Pulse 84, and weaker; temperature 102$\frac{2}{5}$°; respiration 46. Had been easier during the night and fed a little. Gave a mixture of Sp. Æth. Nit. ʒij., Chlor. Hyd. ʒiij., Liq. Ammon. Acet. ʒiv. The owner was very anxious to get him into slings; but, being such a very big horse, he was advised not to do so. However during the day he made a temporary sling; but they had only just got him up when he struggled fearfully, and died in about ten minutes.

On making a necropsy, the psoas muscles were found to be lacerated in a transverse direction; great extravasation of blood in the lumbar region, especially above the kidneys; the spinal cord was very much congested as far forward as the tenth or eleventh dorsal, while anterior to this it seemed quite normal in appearance. All other internal parts were apparently in a healthy condition.

CASE II.

The thoroughbred horse Clearwell, the property of Dr. Brockwell, was turned off for a month's rest, and on December 30th, between three and four o'clock, had a ball given him. About nine o'clock the same evening a message came, to the effect that the horse was very ill, and unable to get up. On making inquiries, it was found that he had been done up for the night, between seven and eight o'clock, when to all appearances he was quite well, and fed as usual. About half-past eight the man heard him striking the box, and on going to see him found him sitting on his hind quarters, and endeavouring to get up. He was assisted, and they succeeded in getting him up, but he soon went down again. The symptoms were, pulse 76, and full; temperature 102⅘°; respiration 35; mucous membranes injected. Examination *per rectum* found the latter distended with fæces, which were rather hard, while the bladder was found to contain a little urine. Gave him mixture of Chloral Hydrate ʒiiij., Liq. Ammon. Acet. ʒiv., Ol. Lin. ʒxvj.; to be followed in four hours by Æth. Chlor. ʒij., Liq. Ammon. Acet. ʒiv., in pint of warm ale. Warm fomentations to loins, to be followed by application of Cataplasma Sinapis.

31st.—Pulse 88; respiration 45; temperature 103°; mucous membranes highly injected. Passed some fæces and urine during the night. Had been very restless throughout the night. Gave him a mixture of Chlor. Æth. ʒij., Chlor. Hyd. ʒij., Liq. Ammon. Acet. ʒiij.; to be repeated every three hours. Warm fomentations to loins. Evening.—Found he had been easier during the day; but the symptoms were now more severe, and a fatal termination was prognosticated. He died about half-past eight that night, having struggled fearfully during the last few minutes. He was quite conscious to the last. I was unable to make a *post-mortem* of this horse, the carcase having been removed before I arrived next morning.

CASE III.

Was a horse, the property of Messrs. Gillon and Co., Sandwich. A dray with a pair of horses was sent out on the 18th January. After proceeding about four miles, the off-side horse was observed by the man to be dragging his hind legs very much in going down

a hill. After going a little farther, the horse fell, but in a little time got up again, but still seemed weak behind. He was then taken out, when, after getting about a quarter of a mile farther, the hind legs gave way again, and this time he was unable to get up.

The weather being so very rough that day, they were not able to get him under shelter until late at night, when he was placed on a hurdle and dragged some little distance to a coach-house. A message came here in the evening, but the snow had drifted to such an extent that it was an impossibility to leave this place that night. Sent back by the man a mixture of Chloral Hydrate ʒp., Sp. Æth. Nit. ʒij., Ol. Lin. ʒxvj.; to be followed by Chloral Hydrate ʒiij., Sp. Æth. Nit. ʒij., Sp. Ammon. Arom. ʒj., in a pint of warm old ale.

On the 19th I went to see him, and found his hind extremities quite rigid and cold, while the fore legs were moderately warm; ears and surface of body cold. Pulse was 96; temperature $104\frac{2}{5}^{\circ}$; respiration 70; mucous membranes very highly injected. Removed fæces, which were hard, while the urine which was taken away was almost of a chocolate colour. Had him well rubbed and covered. Fomentations to loins, and embrocation to be afterwards applied. Evening.—The symptoms about the same, but the respirations increased. Gave Æth. Chlor. ʒij., Spts. Ammon. Arom, ʒj., Tinct. Aconite ♏xx., in warm ale.

20th.—The symptoms were greatly aggravated, and recovery considered hopeless, so he was ordered to be destroyed.

A necropsy showed extravasation of blood immediately beneath the lumbar vertebræ, while the spinal cord and its meninges were very much inflamed. The lungs were also highly inflamed, which inflammation had undoubtedly been caused by the long exposure during that very severe day. The cervical portion of the spinal cord was normal in appearance.

Case IV.

Was a van mare, property of Messrs. Gardiner and Co., brewers, Ash. She left in good health on the morning of the 28th January.

Having gone about two miles, the man observed her, in going

down a hill, to have a straggling gait, and the off hind leg seemed to be powerless.

He took her out of the van, and with great difficulty got her into a neighbouring stable. When I saw her she was perspiring profusely, with an occasional fit of rigors, anxious countenance, and visible mucous membranes highly injected. Hind extremities rather stiff, and when pricked with a pin sensation was only partial. The gluteal muscles were hard and rigid. Gave her a mixture of Sol. Aloes ʒvij., Liq. Ammon. Acet. ʒij., Tinct. Aconite ♏xxv., to be followed in three hours by Æth. Chlor. ʒij., Tinct. Aconite (Fleming's) ♏xx., Liq. Ammon. Acet. ʒiiij. When seen in the evening the symptoms had increased, and she died about twelve o'clock that night.

A necropsy showed the spinal cord and its meninges, as far forward as the ninth or tenth dorsal vertebræ, to have suffered from severe inflammatory action, the membranes being almost black. The cervical portion was apparently normal in colour. Deep extravasation of blood in the tissue between the kidneys and spine. All other organs were of a normal appearance.

Should you think the above cases are worth recording in your next month's Journal, I shall be happy to send the symptoms of a similar case, which we have now under treatment, and which I am afraid will prove fatal.

[From the history and symptoms described, we should be inclined to consider the above cases as those of Hæmoglobinuria, or, as it is sometimes designated, Azoturia—not as cases of Cerebro-spinal Meningitis.]

THE PART PLAYED BY FLIES IN THE PRODUCTION OF BURSATTI, AND THE PATHOLOGICAL ANATOMY OF BURSATTI AND CANKER.

BY RICHARD WM. BURKE, M.R.C.V.S., EDINBURGH.

I.—WHAT I have yet said concerning the part played by flies in the production of Bursatti (VETERINARY JOURNAL for October, 1880) might suffice for an abstract theorist on the subject, but will not, I am convinced, be enough for the practical man. I

will, therefore, endeavour to place before the profession many more facts, with a view to establish a strong basis for my proposition. My reasons, then, for ascribing to flies such a paramount share in the production of the disease are threefold; and these are evidenced by examining the relation they bear to the appearance of it in—

(*a*) *Special seasons.*
(*b*) *Special countries (districts).*
(*c*) *Special circumstances.*

(*a*) We have seen how the disease usually manifests itself as an enzootic during the summer season, viz., from April to June; and it is at this time of the year that the insect is most abundant.

(*b*) I have called attention to the fact that Bursatti is more prevalent in the upper parts of the country, that is, in and about Patna, Baraily, Delhi, etc.; and it is in these parts that flies are more numerous during the "hot weather" than in others.

It is also well known that the rifeness of the disease is proportionable to the abundance of flies.

Rawul Pindi and Jhelum, in the Punjab, are said to be almost exempt from the appearance of the disease. These districts, enjoying a longer winter and a short, mild summer, are not troubled with flies to the same extent as other parts of India, hence the less frequent occurrence of the disease in them.

(*c*) For the sake of perspicuity, we may sub-divide this heading into—

1. *Stable management.*
2. *The mode of living and treatment received.*

1. The first includes all circumstances favouring the attack of flies, such as—the confinement of horses in stables at all hours of the day; the needless use of "heel-ropes;" the cruel practice of cutting short the tails of animals, and the want of "eye-fringes" during the summer months; collection of secretions within the "sheath" of penis, below the root of the tail, within the inner canthus of the eyes; and accumulations of all kinds of filth within or contiguous to the stables, such as collections of urine, fæcal matter, etc. As an instance of confinement of horses in

stables favouring the onslaught of flies and the subsequent development of the disease, I will call attention to the fact that since the Stud Commission ordered that the horses were to be let loose in the paddocks day and night (summer), excepting during meal-time, there have occurred but very few cases of Bursatti in the stud depôt at Hapur. Again, we shall take the instance of the horses of the "Horse-breeding Department" at Hapur. These animals, through the fear of their breaking into the paddocks of the Stud Department, and there forcibly "covering" the remount mares, are obliged to be kept stabled night and day. What has been the result of this? During the year 1877, from a number of about 1,500 horses in the stud depôt at Hapur, only two or three have been admitted into hospital suffering from Bursatti; whereas in the stables of the Horse-breeding Department, where the stallions are obliged to be confined, there occurred over fifteen cases of the disease among a number of only ninety horses in one season. The field of this mischief is still further widened when these unfortunate stallions are sent to their respective breeding districts. Here the use of the "heel-ropes" by the ignorant Zameendars and Asahmees, together with the filthy surroundings of the villages, the saturation of the stalls with urine and dung, the entire want of grooming, and a thousand other like sources of mischief, work conjointly to invite the principal cause of the disease, viz., the flies; and the result is that a perfectly healthy and valuable animal returns next year in most cases ruined and shattered in its constitution, and covered with Bursatti sores.

2. Under this heading may be considered the fact that out of some forty or more grass-cutters' ponies, carrying grass for the "stallions' stables" at Hapur, it has been recorded that not one case of Bursatti occurred among them during a period of three years. This is easily accounted for when we contrast the condition of these animals with those that are confined to their stables. Throughout the day, whilst the grass-cutters are collecting grass, their ponies are let loose to graze at freedom, and are thus less troubled by flies; whereas we have just seen how numerous are the circumstances favouring the attack of flies under which *stabled* animals are placed.

In a paper read before the Edinburgh Veterinary Medical Association, in 1878, I have stated,—

"(*a*) The disease is prevalent not only at the approach* of the wet season, but usually a sure break-out is witnessed when *flies* are seen to exist in greatest numbers, generally about that period of the year 'when the buds of the linseed plant are seen expanding into mature flowers.' One of the Government studs, situated in the neighbourhood of Patna (Hajeepore), in the Bengal Presidency, was abolished by order of the Government, owing to the great per-centage of deaths† occurring from the constant prevalence of the so-called Bursatti disease. This district of India is well known to have been one of the richest and best in linseed production, and one most infested with flies. Baraily, a city in the North-west Province, also much frequented by flies, is, in proportion, subject to severe outbreaks of Bursatti in the horse.

"(*b*) Ordinary, healthy wounds, when left exposed to the attack of flies during the hot season, or that period which immediately precedes the rains, will degenerate into Bursatti, notwithstanding that the condition of the patient at the time of the accident is strong and muscular, and the animal well developed, with the organs of the body in healthy, normal operation.

"Horses, again, are frequently seen biting or 'nipping' at their legs, from some apparent irritation, and thus producing a sore; the sore so formed is very prone to take on 'unhealthy action,' and rapidly to present the peculiar characteristics of a Bursatti sore. The irritation is invariably noticed when flies are numerous and are seen attacking the horses. Mr. J. Burke informs me he has seen true kunkurs produced on the scalp of man from the sting of a fly, also from that of mosquitoes, all in the short space of two or three days, but early eradication by the use of nitrate of silver checks subsequent ulceration.

* The *approach* of the rainy season is necessarily the hottest period of the year, for without heat no rain could result; and the heat and moisture of the rainy season, together with the luxuriance of the vegetation, are conducive to the propagation of *flies* and *insects*, met with in great variety and splendour in India.

† Indirectly, as all animals in the advanced stages of the disease had to be destroyed.

"(*c*) Another point worthy of notice is, that in a stud hospital of about eighty strong, one-third of which are, perhaps, admitted for simple wounds, very different results have been witnessed in the progress of the wounds in the different animals. Those whose wounds were protected from flies by the addition of sulphur, aloes, camphor, turpentine, and the like to the daily applications, and by careful bandaging, etc., have been discharged from hospital within a very reasonable period; on the other hand, a few animals of the same lot, whose wounds resulted from similar causes, but having been neglected and left exposed, have taken on Bursatti action."

In another part of the same essay I have stated,—

"We have now seen that English horses reaching India in January and February suffer from Bursatti in March and April—a couple of months after. It is the same with Arabs and other breeds of horses. As I have before said, it is not even necessary that they should remain in the country two months before being liable to be attacked by the disease. It altogether depends upon the season when they arrive in that country. English horses, as a rule, reach there between November and February (speaking of the Horse-breeding Department in India), and the hot weather sets in 'down-country' by the 1st of March, and 'up-country' by the 1st of April; and with the setting-in of the hot weather the *flies* make their appearance in swarms; so that horses reaching India (Hapur) in the early part of winter have four or five months of cold weather before them, and those following the former batch, and reaching there about the latter part of winter, have a month or two only between their arrival and the advent of *flies*."

The belief that Bursatti was a parasitic disease, and that it was disseminated by the agency of *water*, as endorsed by Mr. F. Smith and others, is erroneous. This theory is scarcely commensurate with fact when we see that Bursatti occurs quite as, if not more, frequently in animals to whose face and limbs water is never applied for several months at a time. The notion originated, I presume, from observations made in the case of regimental horses, where, perhaps, water is much used in cleaning animals. But it cannot be applied in the case of other animals

where the disorder is equally rife, and the use of water for cleaning the face and limbs interdicted. Hence the supposed instrumentality of *water* in the propagation of this disease is obviously absurd.

The manner in which flies serve to give a *locus standi* to the disease has been fully explained in the VETERINARY JOURNAL for October, 1880.

II.—PATHOLOGICAL ANATOMY OF BURSATTI AND CANKER.

I had prepared sectioned and "mounted" specimens of Bursatti and Canker in common, nearly two years ago; and in a paper which I prepared for the Edinburgh Veterinary Medical Association, Clyde Street, I described in full, though briefly, the results of my examination of all these. I here append that description:—

"In order to place the pathological anatomy of these two diseases clearly before you, we must adopt certain methods of description which will be both intelligent and precise. To accomplish which we must trace the 'thread' of health, and note where it fails anatomically; we shall then have arrived at the true features of the diseases. For this purpose we may divide their study into—

(*a*) *Macroscopic appearances.*
(*b*) *Microscopic appearances.*

"(*a*) A thin section, 'mounted' on a slide and placed before the light, shows a structure very irregularly traversed by bands of fibrous tissue, in the meshes of which are enclosed, every here and there, concentric plates, condensed and more opaque than their surroundings. These latter are the sectioned appearances of such kunkurs as have not yet received calcareous deposition. In places where the kunkurs have attained to maturity (if I may so term it) by calcareous change, the act of sectioning causes their dislodgment and the resulting circular or oval spaces which are also seen to be occupying the field of the section. But if the section be of parts rapidly developed, as from the superficial layers of the fungoid growths for example, or in some cases from a tumour which has attained a considerable size in a rapid space of time, this fibroid diffusion is more or less absent, the

structure then presenting more of a cellular appearance, under a low power, with a slightly fibrillated matrix.

"(*b*) On examining the sections under $\frac{1}{4}$th, $\frac{1}{8}$th, and $\frac{1}{12}$th objectives, what do we see? In the earlier growths the cells predominate over the matrix, and are usually smaller in size than the cells to be seen in the section from a sore of some standing, especially if from the lower layers of the growth.

"In some cases there is an irregular commingling of fibres and cells (fig. 1).

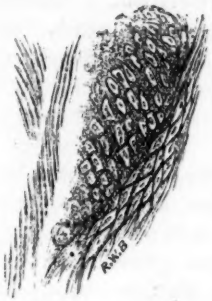

Fig. 1.

"In many of the sections examined I have observed numerous small, communicating saccules or aceni, lined with small spindle-shaped, round, or oval epithelial cells, the interacenous spaces being in places occupied by dense fibrous tissue. This is characteristic of 'Epithelioma,'* when met with in structures not primarily glandular. It is otherwise known as *adenomatous structure.*

"1. *Matrix.*—This is made up in the main of white fibres resulting from the spindle cells (fig. 5, plate I., to the left), and partly from the included areolar tissue, with few coarse (yellow elastic) fibres. This is brought out very beautifully by the magenta solution, which occasions a dark red colour in the *coarse*, while it leaves the *white* fibres unaffected. The arrangement of the first resembles precisely that of ordinary white fibres elsewhere

* The term "*Epithelioma*" simply means an ordinary epithelial tumour, and conveys no meaning of Cancer. Hence I have adopted the term *Cancroid Epithelioma*, or, better still, *Epithelial Cancer.*

—viz., they are either parallel (fig. 1, to the right), or forming hillocks or undulating projections and depressions in their course (it is not necessary to insert a separate drawing of it here); or, when resulting from spindle-shaped cells around the cells which are undergoing augmented endogenous multiplication and outward expansion, they are observed to be arranged in concentric layers (fig. 2). It is to be here noted that the concentric method of arrangement differs from health, and is a disease condition characteristic of 'Epithelioma,' worthy of special notice.

Fig. 2.

"On chemical test the white fibres behave precisely in the same manner as ordinary white fibrous tissue in health, the addition of acetic acid converting them into a collagenous mass.

"I fail to recognise the characters described by Mr. F. Smith, M.R.C.V.S., as seen under his microscope, the individual fibres themselves being so extremely fine and delicate, and *homogeneous* in appearance, that to identify the phenomena displayed under his eye seems to me to be an impossibility. 'The first stage of growth of the tumour,' according to him, 'seems to consist in the appearance of certain large fibres faintly striated longitudinally.' . . 'These gradually become infiltrated with the *specific* "*brownish cells*," which seem to become fitted into the striæ between the smaller fibres, which result from longitudinal splitting of the larger ones'! Rather a bald piece of speculative pathology.

"At most I can detect but an indistinct nomination in the component *fibrillæ* given by the lime-water and chloride of sodium solutions. Observe: 'The term *fibre*, as applied to microscopical objects, has not been well defined. The word has been applied

to the delicate line-like markings seen when a band of white fibrous tissue is examined. Although the fibrous band seems to be composed of a collection of minute threads, it is impossible to separate white fibrous tissue into a number of minute individual elementary fibres. The tissue may be truly said to exhibit a fibrous appearance under the microscope, but it is not possible to *split* it into fibres of any determinate size' ('The Microscope in Medicine,' by Dr. Lionel S. Beale).

"'It will be observed,' says the author of 'Bursatti,' Mr. F. Smith, M.R.C.V.S., 'that the large *primary* fibres are the *parent* stage of the smaller ones, into which they become converted by infiltration with the *specific brownish cell*, and by *longitudinal splitting*.' The so-called '*primary*' and '*parent*' fibre is, we imagine, in reality nothing more than an ordinary white fibre, and the '*longitudinal splittings*' its component fibrillæ; the '*brown cells*,' as it were, tearing away the connecting cement (?), and infiltrating the interstices formed by the fibrillæ, giving rise to, 'by an extension of the process,' . . . . . 'the fibrous reticulum, with the cells in its meshes'! that is, constituting in the end, I suppose, a somewhat similar arrangement to that seen to a certain extent in my drawing, fig. 5, plate I. I would, however, suggest that the increase in the fibrous elements observed in these sections are the result not of *splitting* of '*parent*' fibres, but of *general compression*, the spindle-shaped cells to the left of fig. 5, plate I., occasioning the '*primary*' fibres seen on the right of the figure. Not infrequently the fibres become quite transparent upon being treated with *dilute* acetic acid.

"Mr. F. Smith would also have us call some of these fibres '*hyphal tubes*'! But this appears to us to be somewhat chimerical. In fact, the '*hyphal tubes*' with '*bright extremities*,' if Mr. Smith would permit us to venture a suggestion, we would say were in reality ordinary *coarse* (*yellow elastic*) *fibres*. And, although usually *solid*, the coarse fibres in health sometimes show *crevices*, *fissures*, and *excavations*.

"2. *Cells*.—These are the ordinary squamous epithelial cells of the part, having undergone such modifications as are generally admitted to be characteristic of Cancer. The first thing that

strikes the eye of the observer in the field of the microscope *is the immensely granular appearance of the cell-contents as presented by these cells;* the cell-wall is present; and there are usually two, three, or more nuclei (masses of 'bioplasm,' of Beale), either distinctly (fig. 3) or indistinctly (fig. 4) mapped out, with several nucleoli.

Fig. 3.

Fig. 4.

"The cells represented in fig. 4 seem to me to be the so-called 'brown cells' of Smith. [If the author of "Specific Brown Cells" will kindly refer to my article on "Bursatti," VETERINARY JOURNAL, October, 1880, he will there find it stated (on the authority of Sir James Paget) that *pigmentation* of cells is a process having nothing of the nature "*specific*" about it, but that it is an accidental phenomenon, explaining nothing of the nature of the etiology of the disease wherein it manifests itself. Hence it merits no special consideration here.]

"Some of the cells are in a state of fatty degeneration (fig. 5)."

Fig. 5.

(To be continued.)

CLINICAL NOTES.

BY T. WALLEY, PRINCIPAL, EDINBURGH VETERINARY COLLEGE.

Invagination and Mesenteric Strangulation of the Ileum.—Mare.

SOME time ago I received from Mr. Mitchell, of Stranraer, the ileum and mesentery of a mare, with the following history:—

The animal had aborted about two months prior to last illness, and subsequent to aborting had suffered on several occasions

from Colic; became lean and unthrifty. At nine a.m. on the day before her death, while at work, she showed symptoms of Colic. She was immediately taken home, and an anodyne draught, composed of 2 ozs. each Tincture Opium and Chloric Æther, administered. At this time the most pronounced symptom was sitting on the haunches, alternately lying down, but not rising. (Mr. Mitchell considers this very diagnostic of Strangulation, at least as compared with Colic Impaction, as in the latter the animal rises, or nearly so, after sitting for a short time.) About twelve o'clock an attempt was made to administer a dose of physic, but it failed; mustard, followed by hot cloths, was applied to the abdomen, and the anodyne draught repeated.

Mr. Mitchell did not see his patient until nine o'clock, when he found the following symptoms:—Pulse, 90; expression of countenance anxious, but eye bright; respiration only slightly accelerated in the intervals of relief from pain, which was paroxysmal; external temperature normal. On examination *per rectum*, Mr. M. found the small intestines tympanitic, large empty.

The treatment adopted by Mr. M. was the administration of Acid Carbolic with Oleum Lin., and Mustard to the abdomen. He stayed with the mare until twelve, at which time she was standing; but shortly after his departure she commenced to perambulate the box in a circular direction, continuing the motion until a few minutes before dissolution, which occurred about nine a.m., twenty-four hours from the time she was first observed unwell. Mr. Mitchell further remarks that there was no straining when he introduced his hand into the rectum, and the parts had a flabby feel. These conditions he thinks diagnostic as between Strangulation and Calculus or Indigestion, in which there is usually violent straining when rectal exploration is had recourse to.

Condition of the Bowels.—On examining the bowel sent by Mr. Mitchell, I found a most remarkable *Invagination*, complicated with *Mesenteric Strangulation*, the invaginated portion of bowel being involved in the Strangulation, showing that the latter must have been the secondary lesion; its production being no doubt facilitated by the increased weight of the invaginated bowel, and the violent spasmodic action which must have been going on in its coats.

The invaginated portion measured two yards, but did not present any unusual characteristics except in the extreme length and the complication of Strangulation.

The remarks made by Mr. Mitchell as to the differential symptoms are worthy of notice, though I have myself seen animals strain violently in torsion and allied lesions, when the hand has been introduced into the rectum. The tympanitic condition of the small bowel is easily accounted for.

Medullary Sarcoma at Root of Mesentery, Primary, with Secondary Intestinal Lesions.

Subject.—Black mare, — years old (light cart).

History.—I examined her as to soundness 18th November, 1880. Was then in *good* condition, but had a patch of *Mange* on withers, which I pointed out to owner, and advised non-purchase. Mare was returned; but a second purchase proving unsatisfactory, an exchange was made about November 30th. I did not see the mare until about 6th December, when the Mange had extended very considerably, and she had become emaciated, and had a very unthrifty appearance.

December 8th.—Admitted to College Infirmary, and treated for Mange. Improved markedly, and was discharged on 20th. Saw her occasionally after this date, and about middle of January her appetite became fickle and emaciation proceeded apace. Good food and tonic medicines administered, but without any change for the better.

February 15th, 1881.—Again admitted to infirmary; very anæmic, weak, and debilitated, which I attributed to the effects of the Mange. Examined blood; it was charged with leucocytes, did not coagulate firmly, and there was excess of serum. About the 20th diarrhœa set in, with occasional colicky pains. Nothing specific about discharges.

28th.—Looked livelier. Had been having Opium, Chalk, Ferri Carb., and Potass Bicarb. Fæces normal. Thought of having recourse to transfusion, but next morning the mare was found dead in box. I anticipated *ante-mortem* cardiac clotting, which on *post-mortem* proved to be the case.

Autopsy revealed Aneurism and Thrombosis of anterior mesen-

teric artery. A semi-fluctuating tumour in mesentery at its roto, somewhat globular in shape, lobulated and encapsuled with signs of recent inflammation of contiguous mesentery. Tumour about size of two fists placed side by side.

On incision of the capsule, the characteristic medullary matter of Medullary Sarcoma extruded; microscopic examination by Mr. Grey proving its nature.

Along the course of the free border of the ileum five patches of thickening (varying in size from the doubled fists to a florin) with pigmentation, were observed. The largest patch internally resembled a sacculation produced by laceration of the mucous membrane and sub-mucous tissue, the edges of the sac being round and thickened, and its bottom also much thickened, with a quantity of degenerated intestinal structure of a blackish hue clinging to it. On cutting into the thickened intestinal wall, the conditions seen in the mesenteric tumour were observed, but not so far advanced. The other patches presented circumscribed ragged ulcers, with slight depression below surface, in the smallest, to raised patches, with a peripheral extension, in the larger; the altered mucosa of which was pigmented and firm—Melanotic Sarcoma.

Liver and kidneys too much altered to get any satisfactory microscopic examination, as horse had lain thirty-six hours.

I had attributed this animal's illness to acute Anæmia and Ulceration of the bowels.

FLUKE IN THE LUNGS OF CATTLE.

BY MATTHEW HEDLEY, M.R.C.V.S., TRAVELLING INSPECTOR, VETERINARY DEPARTMENT, IRELAND.

SINCE my contribution to the VETERINARY JOURNAL in June, on the above subject, a large number of instances of this very interesting freak of nature have come under my notice. I have had an opportunity of making a few observations which may be brought before the profession.

The condition of the portion of lung containing the *Distoma hepaticum* varies according to its age. The older the capsule

is, the harder and denser are its walls. These walls appear to become calcified. Such capsules contain a variable quantity of a brownish fluid, or instead of a fluid it is thick, and like normal pus in consistence only. The Distoma found in such a capsule is generally well-developed and sexually mature. Other and younger capsules have younger Distomata. Instead of having a thick wall, as above described, some are more cartilaginous. Unless the search is made carefully, the Distoma is very easily overlooked, but when found it has never been either full grown or large. I have never found more than one Distoma in each capsule. Only in one instance have I found two capsules in close proximity to each other. In all cases when I have had an opportunity to examine the livers of cattle in whose lungs I have discovered the flukes, I have found them to be also attacked with *Distoma hepaticum*. I have submitted several pieces of lung to the editor of the VETERINARY JOURNAL, which contained capsules. Some of the capsules I cut to ascertain whether they were fluke capsules or not; others I sent intact, thus affording him an opportunity of observing the contents of the capsule when freshly cut.

Including the eight pieces of lung thus forwarded, I have cut and examined thirteen other capsules. When such a number of cases have come under my notice, I am inclined to think that it is rather common. I have not had any opportunity of examining the lungs of sheep, and therefore am unable to offer any remarks about them.

APOMORPHIA.

BY J. DOWLING ALLMAN, A.P.S., LONDON.

THIS non-officinal alkaloid is not known in veterinary science, but I think it can be introduced with advantage as a powerful and efficient emetic in cases of accidental poisoning of dogs. The substance was first discovered by Dr. Matthieson and C. R. A. Wright (*Proceedings of the Royal Society*, vol. xvii., p. 455), who made it by the action of a strong solution of hydrochloric acid upon morphia; but a better plan of making it is that of E. L.

Mayer, in which the morphia is treated with a solution of the chloride of zinc at 120° C.

It occurs as a snow-white powder, which is permanent when dry, but if it at all absorbs moisture it very quickly changes to green. Its solution is liable to the same change, which is most likely an oxidation, and it will be noticed that if the solution be kept for a few weeks the green tint turns into black. If bichromate of potash be added to it, it will change to a dense yellow orange, and with neutral chloride of iron it strikes an amethyst colour. It is chemically and physiologically different from the alkaloid morphia, is soluble in cold water, and owing to the very great rapidity with which it undergoes decomposition when in solution, it should only be dissolved at the time of using. Dr. Gee (*St. Bartholomew's Hospital Reports*, vol. v., p. 215) has proved that the substance is a most certain and prompt emetic. He found that so small a dose as a tenth of a grain, when injected under the skin, was sufficient to cause vomiting in ten minutes. His beautiful experiments have been fully confirmed by some other eminent men, among whom may be mentioned Dr. F. Pierce (*British Medical Journal*, 1870, p. 274). Dr. Pierce remarks that the dose employed by Dr. Gee is too large, and that he found one-fifteenth of a grain amply sufficient to empty the stomach in from five to ten minutes. Apomorphia should take, I consider, a prominent position in veterinary practice, especially with those gentlemen who pay more attention to canine practice, as it will be found such a prompt and useful emetic in cases of valuable dogs accidentally picking up some poison. It has a decided advantage over the ordinary emetics, as it can be injected subcutaneously with the hypodermic syringe,* in the loose skin under the arm. The dose I should advise in cases of accidental poisoning would be from one-quarter grain to one-half grain dissolved in a little water. My friend Mr. L. Butters, M.R.C.V.S., of Liverpool, who has used my celebrated hypodermic solutions to a very great extent, since I introduced them

* The best hypodermic syringe for veterinary use is made by Messrs. Arnold and Sons. Many of the syringes sold are not fit for use, as the piston is made of brass, and the solutions acting upon it change it into acetate of copper, which is highly detrimental.—J. D. A.

in 1878, generally injects into the jugular vein. This is certainly, to say the least of it, heroic practice in the extreme; but Mr. Butters assures me that he has never found it attended with any evil consequences, and that he finds the physiological action of the drugs employed more conspicuous than when injected into the arm. But on the whole, and for safety's sake, I would recommend the loose skin under the arm. If the Apormorphia be given by the stomach, about double the hypodermic dose should be exhibited.

EXTRAORDINARY CASE OF IMPACTION OF THE STOMACH AND ŒSOPHAGUS OF A HORSE.

BY R. F. FROST, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, RANGOON, BURMAH.

ON the 18th of April, I was asked to prescribe for a horse, the property of Capt. ——, R.A.

The horse was about eighteen years old, and in low condition.

For three days previous to my seeing him he had not eaten any solid food. He took a small quantity of green grass and drank a little water, but would touch nothing else.

When I saw the horse on the evening of the 18th, he gave indications of Colic, arising from an accumulation of fæces in the intestines.

Gave a strong aloetic purgative, and to allay the slight pain, injected subcutaneously Atropiæ one-fifth of a grain.

Ordered hot fomentations to the abdomen, and enemata of warm water and soap every two hours.

Give nothing but sloppy food.

April 19th, morning.—Little or no change. Pulse 45; no abatement in the colicky pains. Removed four quarts of blood from the jugular vein, and injected subcutaneously Atropiæ one-fifth of a grain.

6 p.m.—The bowels have begun to respond; there is considerable borborygmus. Continue hot fomentations, and repeat subcutaneously injection of Atropiæ.

April 20th.—Worse. Pulse 74; very restless, no motion of the bowels, no vermicular action. Owing to derangement of my

hypodermic syringe, I cannot use it. Give Opium ʒiij., Calomel ℈ij. in ball, and repeat in six hours.

6 p.m.—Seems livelier and easier. Pulse gone down to 65; drank gruel. Repeat opiate, and continue fomentations.

April 21st.—Very restless, moving about the box continually, as if suffering great pain. Pulse 75; no motion of bowels. Repeat opium and calomel; continue fomentations.

6 p.m.—Same as in morning; inject subcutaneously Morphiæ grs. three, and Atropiæ one-tenth of a grain.

April 22nd, morning.—Spent a quiet night. Pulse 60. Pain less, but breathing accelerated. Refused all nourishment. Still no motion of bowels. Inject Morphiæ two grains; foment as before.

7 p.m.—Animal suffering from choking. Cannot account for it, unless ball given yesterday morning is impacted in posterior part of œsophagus. The impediment is in the thoracic portion of the œsophagus. The only appliance to hand is a rope, and this can be passed a short distance into the thorax, but no further.

23rd.—On visiting patient early this morning I find, to my astonishment, that instead of the impaction being confined to the thoracic portion of the œsophagus, it has now extended halfway up the cervical portion of that organ. I passed a probang, but to no purpose; so I instantly decided on œsophagotomy. I need not enter into details regarding the operation; suffice it to add that by the means of large bullet forceps I was enabled to remove an immense quantity of masticated straw from about six inches above and below the opening made in the œsophagus.

As I could not reach further in a backward direction, and as syringing failed to remove more than a very small quantity of the impacted mass, I was obliged to desist.

My poor patient was so exhausted that he soon after died without a struggle.

Post-mortem made half an hour after death, in company with Surgeon-Major E. B. Grant:—

Slight congestion of mucous membrane of the intestines. Small intestines nearly empty. Liver soft; other viscera normal. Stomach full to repletion. Thoracic portion of œsophagus firmly impacted. Removed stomach and œsophagus for more careful examination.

Before proceeding further, I may here add that I fully expected to find the ball given on the 21st firmly impacted in the constricted portion of the gullet close to the diaphragm, but no such impediment was found.

I have said that the small intestines were empty. The stomach was so completely filled that I do not exaggerate when I say that it would not contain another spoonful. Its contents was a mixture of oats, grain, and hay. This mixture must have been in the stomach for a period of eight days, yet it had not been in any way acted upon by the gastric juice.

Following up the impacted mass in the œsophagus, I was surprised to notice that there was no interruption between itself and that in the stomach. The mass in the gullet was continuous with that in the stomach. *Even at the cardiac orifice the impediment existed.*

The opiate ball which was given on the morning of the 21st, was found on the surface of the mass of ingesta in the stomach; no change had taken place in it. It is now before me, and the only change that it underwent during its forty-eight hours' sojourn in the stomach was the bursting of the paper. Particular attention was paid to the condition of the pyloric orifice, with the view of ascertaining if any constriction existed at this part. But neither constriction nor any form of derangement could be detected.

The walls of the stomach were atrophied to a considerable degree. In parts the tissues were so thin that they were semi-transparent. The muscular tissue, in particular, was very much atrophied.

To this fact I am inclined to attribute the impaction. I may not be correct, but I look upon this case as one of complete paralysis of the stomach.

For days, I conjecture, there had been entire suspension of the movements of the stomach; there had been complete arrest of gastric secretion, as may be proved by the condition in which the ingesta was found: no change had taken place in it beyond what had been effected by mastication. Even the opiate ball, which had been given forty-eight hours previously, remained unaltered. Had any gastric movements occurred, the ball would

have been carried towards the pyloric orifice, or at all events it would have been so changed as to be beyond the power of discovery by the naked eye.

I forgot to mention that the œsophagus was impacted with masticated bedding for a distance of three feet seven inches, from the cardiac opening forwards.

I shall feel obliged if you will state whether such cases are common ; I have neither heard nor read of a similar case.

[Such cases must be very rare indeed.]

Editorial.

THE VETERINARY SURGEONS' BILL.

As will be seen from our Parliamentary intelligence, the Veterinary Surgeons' Bill was read a second time in the House of Lords on May 31st, the only opponents being the Duke of Marlborough and Marquis of Salisbury, neither of whom appear to be much conversant with veterinary matters in these kingdoms; in this respect offering a marked contrast to Lord Spencer and the Lord President of the Privy Council, both of whom spoke with judgment, and flatteringly, of the profession and its claims to public support. On June 23rd the Bill passed through Committee, and on this occasion the Lord President intimated that he would move several important amendments when it was reported upon. These amendments we are now in possession of, and their importance is so great that we deem it our duty to publish them. We published the Bill as it was introduced by Lord Aberdare, in the Journal for May, and reference to this will allow the proposed amendment to be understood.

After Clause 5, Clause A is introduced, dealing with the removal of a name from the register, and defining the heads of offences for which such removal may be justified. Clause B details the procedure for removal or restoration of name. Clause C deals with the penalty for wilful falsification of register. Clause D is concerned with the registration of colonial or foreign practitioners who possess a recognised diploma, and defines what is meant by a diploma. Clause E confirms the Charters of the Royal College of Veterinary Surgeons by Act of Parliament, but permits making amendments or additions thereto. It is in Clause F that the portion of the amendments which most deeply affects the veterinary profession commences. This portion, which orders that the title of existing veterinary practitioners is to be registered, adds :—

(1) Where at the passing of this Act any person practises and has continuously for not less than five years next before the passing of this Act practised veterinary surgery in the United Kingdom, but is not on

the register of veterinary surgeons, he shall be entitled to be so registered at any time within one year after the passing of this Act, without examination, on such terms as to payment of fees, and as to other matters, as the Council of the said Royal College, with the approval of the Privy Council, directs.

(2) On any person applying for registration under this section, and producing to the Council of the said Royal College evidence of his title to be so registered, by statutory declarations of himself and of other persons able to testify on his behalf, or such other evidence as that Council reasonably requires, he shall be admitted and registered under direction of that Council accordingly.

(3) If a person is refused registration under this section the Council of the said Royal College shall, if required by him, state in writing the reason for that refusal, and he may appeal to the Privy Council, and the Privy Council, after communication with the Council of the said Royal College, may either dismiss the appeal or order that Council to admit and register the appellant under this section.

(4) The names of the persons registered under this section shall be placed in a separate division of the register of veterinary surgeons; and every such person shall be designated a licentiate of the Royal College of Veterinary Surgeons, but shall not be deemed to be a member of the said Royal College within the said Charters of this Act.

Clause G. If after the passing of this Act any person not being a fellow or a member of the Royal College of Veterinary Surgeons takes or uses any name, title, addition, or description, by means of initials or letters placed after his name, or otherwise, stating or implying that he is a fellow or a member of the Royal College of Veterinary Surgeons, he shall be liable to a fine not exceeding twenty pounds.

Clause H. (1) If, after the 31st December, 1883, any person other than a person who for the time being is on the register of veterinary surgeons, or holds the veterinary certificate of the Highland and Agricultural Society of Scotland, takes or uses the title of veterinary surgeon or veterinary practitioner, or any name, title, addition, or description, stating or implying that he is a veterinary surgeon or a practitioner of veterinary surgery, or is specially qualified to practise the same, he shall be liable to a fine not exceeding twenty pounds.

(2) From and after the same day a person other than as aforesaid shall not be entitled to recover any fee or charge in any court for performing any veterinary operation, or for giving any veterinary attendance or advice, or for acting in any manner as a veterinary surgeon or veterinary practitioner, or for practising in any case veterinary surgery, or any branch thereof.

Thus it will be seen that the Bill, if these amendments are incorporated with it, will be of a far more important character than before, and place the profession in these kingdoms on quite an equal footing with the medical profession. It would be premature to examine the amendments in all their bearings at present, as they may be considerably modified before the Bill becomes an Act; but of their value, looking to the future, there can be no doubt whatever. We question if the veterinary

profession on the Continent is so well protected as it will be in this country.

But two points in the amendments must be alluded to. The first is the admission of the names of unqualified men to the register of the Royal College, and the next is the title by which they are to be registered. For reasons which are not far to seek, but the principal of which was that the Royal College never attempted to protect the title of its graduates, the unqualified men made out such a good case that the Lord President and Lord Aberdare could not resist their claim, and a retrospective period of five years was fixed upon for admission. The title originally proposed by Earl Spencer was membership, but this was changed to licentiate. This, however, is a most objectionable designation, as the Royal College has never licensed these men, and knows nothing of their capabilities. We have urged that they be styled "registered non-members," to protect them from the penal operations of the Act, and that they have no voice or control in the affairs of the profession. We have also urged that the retrospective period be ten years, and these alterations in the amendments, together with others we proposed—notably, exemption from serving on juries—Lord Aberdare will bring forward when the Bill is again brought in for report.

A great deal might be said on other features of the amendments, but we must reserve this for another occasion. Our grateful thanks are due to the Lord President and the introducer of the Bill, Lord Aberdare, for the deep interest they have manifested in the profession, and the trouble and anxiety they have encountered in their efforts to serve. And not less grateful are we to all the Veterinary Medical Associations in England (except one), to that of the West of Scotland, as well as the North of Ireland, to the students of the Royal Veterinary College, and to Mr. Simcocks, of Drogheda (who energetically canvassed the whole of Ireland in a few days), for promptly sending in memorials and petitions to the House of Lords, in order to strengthen our hands against the demands of the unqualified men. These memorials and petitions have, we believe, been of great value, and may prove of still further service during the passage of the Bill through the House of Commons; and they demonstrated in the most startling manner, not only by the promptitude with which they were drawn up and despatched, but by the terms in which they were couched, that not only is the profession united as it never was before, but that it is a power in the land.

The Highland Society opposed the Bill, for the reasons shown in the report of its proceedings. Any attempt to improve the position of the profession appears to act upon a small section in Edinburgh as a red rag is said to do upon a bull. We refer our readers to the language used at that meeting, and also to the sadly indiscreet, if not something worse, language employed at the Scottish Metropolitan Veterinary Medical Society's gathering, as evidence that the old Adam still lingers in the Scottish capital.

But this morbid spirit will not delay the course of events that must eventually culminate in a very different state of matters than that which fostered and stimulated it.

We hope, in the Journal for August, to have good news to communicate. In the meantime we would beg our colleagues who have influence with Members of Parliament, to exercise it in favour of the Bill when it reaches the House of Commons, and we will communicate directly with Presidents of Associations, should the weight of these be again required, or should anything important transpire.

THE ANATOMY AND PHYSIOLOGY OF THE THIRD STOMACH OF RUMINANTS.

(*Continued from vol. xii., page* 192.)

II.—Histology.

Having made ourselves familiar with the appearances presented by the third stomach to the naked eye, we propose next to examine them by the aid of the microscope.

On making a transverse section through one of the psalter leaves, we notice on both sides a streaky layer, coloured yellow by picrocarmine tincture, forming the superficial surface, and covering the already described macroscopical papillæ. This is the *stratum corneum*, formed of flat horny scales placed one above another, so that on a transverse section it presents the fibrous appearance just noticed. Exposed to the action of concentrated alkalies or acids, the scales swell out, become clear, lighter in colour, and more cellular in form, and, finally, transparent and invisible. They strongly resist diluted acids and alkalies, as well as peptic juice. In a digestive oven, I placed portions of this layer removed shortly after death, together with pepsin, the activity of which had been previously tested. The lower layers of epithelium became dissolved, but the upper ones continued for several days to resist the action of the heat and pepsin, remaining as a continuous layer; proving that we have here to do with a horny material. Beneath this horny layer, on both sides of the section, are layers of epithelium, whose cells present the most diverse shapes. Some are long, oval, or spindle-shaped cells, which, fitting closely on the papillæ, appear half-moon shaped. Others are angular and polygonal. Their contents are soft and granular, and present numerous shining fat-corpuscles. The nucleus is very clear, and possesses one or more nucleoli. The deepest layer consists of very soft round cells, with granular contents and comparatively large nuclei.

All the above-described layers form the *stratum epitheliale*, which, during life, is firmly attached to the structures beneath, as we have proved by examining it immediately after death. A short time subsequently, however, the epithelium, like that of the rumen, may be easily detached.

The epithelium is situated upon the *propria mucosæ*, which forms the macroscopical papillæ. In this position the epithelial layer is thicker than between the papillæ, especially in the reticulum half, where they have such a hard and long horny apex.

The *propria mucosæ* consists essentially of connective and elastic tissue and vessels. The elastic tissue is especially rich, forming a network extending from the *muscularis mucosæ* to the epithelium, and is best studied by treating the section with potassium hydrate or formic acid. In these meshes lies the loose connective tissue, its bundles of fibres crossing one another in all directions, the whole forming a tolerably firm tissue. Besides the ordinary connective tissue cells, are numerous emigrated corpuscles, and sometimes Waldeyer plasma cells.

The *propria mucosæ* sends into the epithelial layer wart-like conical processes, which are only visible on section, and not from the surface, because the spaces between them are filled up with epithelial cells, and the apices covered by these cells and the horny layer; so that no irregularities appear on the surface. This second papillary layer exists both in and between the large macroscopical papillæ, and is only visible when the epithelium has been removed. This may be effected by means of warm or cold water, or by treatment with alkalies. The method, however, by which this papillary layer may be best demonstrated, is the following: A portion of a leaf is tied to the end of a cylinder open at both ends; the latter is then filled with peptic juice and placed in another vessel filled with the same material, so that both sides of the leaf are exposed to its action. After allowing the juice to act on the leaf for some time (12 to 24 hours) at a temperature of 35-40° C., the epithelial layer may be removed without injuring the papillæ in the slightest degree. The surface of the lamina then appears studded with small processes, as that of the duodenum is with villi. They consist of connective and elastic tissue, and sometimes we may observe one or more spindle-shaped muscular cells. In a well-injected specimen a loop of blood-vessels is, as a rule, observable. The exposed surface of the large papillæ appears tolerably thickly set with these smaller ones.

Beneath the *propria mucosæ* on both sides of the preparation, is a muscular layer which has been cut through in preparing the transverse section; so that only the cut ends of the fibres are visible. On both sides of it is loose connective tissue. This layer is the *muscularis mucosæ*. In the centre of the transverse section of the leaf is seen still another muscular layer running parallel with the section, and much thicker than the two lateral muscular layers taken together, from which it is separated by the connective tissue just mentioned. This middle layer becomes gradually thinner as it approaches the end of the leaf, and finally disappears; whilst the lateral ones increase in thickness, especially at the free extremity, where they form an enlargement.

In addition to the above, we may often observe in the section large blood-vessels situated in the central muscular layer, and giving off lateral branches. Later on, however, we shall return to the distribution of the blood-vessels and nerves.

In reference to the macroscopical papillæ, we may further mention the following: They represent elevations of the entire mucous membrane, and present, therefore, the characteristics which we have described as belonging to the latter. They are rich in elastic tissue, and always present a considerable amount of muscular structure which is in direct continuation with the two lateral layers. By this means they are rendered capable of contracting and of becoming strong, firm, resisting bodies. I have not succeeded in discovering any glandular or tubular structures in the leaves.

Concerning the structure of the outer walls of the omasum, a transverse section shows us the following: On the outer side—that is, on the side opposite to that from which the leaves originate—is a thin connective tissue membrane, the *serosa*, separated by a loose *sub-serosa*, which often contains adipose tissue, and in which are frequently to be seen blood-vessels running longitudinally and transversely from a muscular layer whose fibres appear transverse to the section. Further inwards is a second thicker muscular stratum, three or four times as strong as the former, and running in the same direction as the section. This is separated by loose connective tissue—the sub-mucosa—from another thin transverse muscular layer which we recognise as the *muscularis mucosæ*. This is covered by the *propria mucosæ*, which is constructed in a precisely similar manner to that which we have described in a section of a leaf.

The leaves represent not only a doubling of the entire mucous membrane, but also a portion of the outer muscular structures. The two lateral layers are processes of the *muscularis mucosæ*, the connective tissue beneath them of the sub-mucosa, and the central muscular layer of the inner stratum of the true muscular coat of the omasum.

In a transverse section of the bridge, we observe the following: The *stratum epitheliale* and *proprium mucosæ* are formed in a similar manner to the rest of the wall. The muscular structures are arranged in the following manner: Below the epithelial layer we see bundles of muscular fibres, often widely apart from one another, and running in a transverse direction—that is, from before to behind. They are remarkably strong near the lips of the omasum groove.

To this succeeds a longitudinal layer (that is running from one side of the bridge to the other), whilst still more outwards is another transverse layer. Between the bundles are situated adipose and connective tissue.

A section through the fold situated in the omasum-abomasum opening shows that, in the middle, it possesses a slight muscular layer derived from both stomachs.

From the above description we may sum up the structure of the psalter as follows: The psalter wall is composed of three coats—*serous*, *muscular*, and *mucous*. The external coat, or *serosa*, possesses a loose sub-serosa, in which fat and blood-vessels are often noticeable. The middle, or muscular coat, consists of two layers, the outer of which extends from the reticulum to the abomasum openings; it is but slightly developed, and in the bridge is made up only of bundles widely apart. The other runs in a circular manner from the bridge, over the greater curvature, and back again to the bridge on the other side.

This layer extends into the interior of the leaves, and forms there the central layer whose fibres do not extend as far as the free extremity, but terminate in the enlargement which is made up of fibres running in a longitudinal direction from before to behind. This enlargement, therefore, represents the insertion of the central muscular stratum.

On this double-stratified muscularis lies the sub-mucosa with its blood-vessels and nerves, and covered by the *muscularis mucosæ*, whose fibres run longitudinally from the reticulum to the abomasum. Both layers assist in forming the leaves; so that on each side lies a muscular layer whose fibres run from the origin of the leaves at the reticulum end, where they compose a considerable mass, to the abomasum, forming on their course the enlargement we have described as existing on the free border of each leaf. The muscular apparatus of the laminæ consists, then, of a strong central layer, originating from the periphery and two lateral layers running from the second to the fourth stomach. The first is in connection with the circular muscular coat of the outer wall, whilst the latter represents a portion of the *muscularis mucosæ*.

Inwards from the *muscularis mucosæ* is the *propria mucosæ*, possessing a papillary stratum, and being doubled, assists in forming the leaves. It is covered by epithelium, the upper layers of which are horny in character.

The muscular structure of the bridge deserves especial mention. The longitudinal layer beneath the mucosa becomes very strong, and its bundles placed much closer together as it approaches the omasum-abomasum opening. It divides, however, immediately into two portions, one of which proceeds to the right, the other to the left, to reach a muscular enlargement existing here.

The transverse layer succeeding outwards the above, is in connection on both sides with the circular muscular layer of the rest of the wall. At the omasum-abomasum opening it suddenly forms a thickening, which is in con-

nection with the above-mentioned longitudinal layer. It has a diameter of about two centimetres, and extends not only on both sides of the opening, but also above it, forming in this manner a sphincter.

This sphincter is, then, a partial thickening (that is, an increase of fibres) of the transverse muscular layer of the bridge, whose continuation forms the circular muscular coat of the wall. It is situated a slight distance from the opening, so that a number of leaves, instead of terminating in it, pass beyond.

This transverse layer of the bridge is succeeded outwards by another longitudinal layer, which is, however, but slightly developed. The action of the transverse layers, especially when combined with that of the psalter, must be to narrow the space existing between the bridge and the leaves.

The longitudinal fibres approximate the two openings, principally by drawing the anterior opening towards the fixed point, viz., the posterior orifice.

The following is the course of the blood-vessels of the psalter: From the sub-serosa the main trunks pass through the muscular coats to the sub-mucosa, where they are arranged in a longitudinal manner. Somewhat large branches are given off at tolerably equal distances, and ascend into the leaves, being situated in the central muscular layer. They divide but little until reaching the free border, where they converge towards one another, often dividing into two branches, which, uniting, form arches or loops similar to the *rami intestinales arteriæ mesentericæ superioris equi*. The arches are, however, not so curved, but form rather a continuous vessel which runs parallel to the free border of the leaf. As it approaches either of the two openings, it is of course nearer to the middle branches. From the reticulum end, a vessel is often seen to arise, which likewise runs along the free margin of the leaf, giving off branches that are directed towards the wall of the psalter, and there anastomose with the other vessels.

In addition to this primary set of vessels, the trunks in the sub-mucosa furnish a second or smaller set which, however, soon breaks up, its branches anastomising in the leaves with branches from the primary set. In fact, through this extensive anastomosis a beautiful and regular capillary network is formed, situated directly beneath the epithelium. To each of the macroscopical papillæ a large branch is given off, which courses its way along the margin, giving off numerous smaller ones which unite to form a rich capillary network. The vessels in the microscopical papillæ are arranged sometimes in a loop, sometimes in meshes from which the small veins arise. The veins are similarly distributed to the arteries. They are situated superficially to the arteries, and are devoid of valves; they may, therefore, be easily injected from the main trunks.

A very rich set of lymph-capillaries is found in the mucosa, lying deeper, however, than that derived from the blood-vessels. They extend into the large papillæ. The main trunks are found in the sub-mucosa.

As regards the nerves, their termination, etc., I have only been able to assure myself that they form in the leaves a network similar to that existing in the intestinal walls, and that ganglionic enlargements are by no means unfrequent. Their real termination I did not succeed in discovering. The finer branches are non-medullary in character. Plexuses were also found within the walls, but no ganglia. I observed, however, here and there, multipolar ganglion cells, which communicated with one another by means of their processes. The psalter, therefore, is provided with intramuscular nerve-centres of its own.

These anatomical facts are in accordance with the results obtained by means of physiological experiments. Irritation of the pneumogastric nerve in the neck was followed by strong contraction of all the stomachs, with the

exception of the psalter. They also responded to direct irritation, the psalter merely occasionally, and only on irritating particular places. The fact that whilst the other stomachs after death are relaxed, and the psalter in a state of contraction, further reveals the independence of the third stomach, and the presence of a centrum of its own.

III.—Physiology.

From the foregoing anatomical facts may be derived, with more or less certainty, a number of physiological conclusions. Before, however, passing on to reply to the questions which suggested themselves at the commencement of our inquiry, it may be as well to consider the condition under which the food arrives between the leaves, the manner in which it is moved onwards towards the succeeding stomach, etc. It is obvious that the most appropriate way for the food to arrive between the leaves is that of the œsophageal groove. Harms* and Lemoigne† have clearly demonstrated how the contents of the reticulum can raised into the œsophageal groove. That the reticulum, in conjunction with the musculature of the reticulum-psalter opening, is in a position to bring the food to the upper part of this opening, is equally certain. Arriving there, the only possible means of exit is by passing between the leaves, for the psalter canal has become almost wholly obliterated by the lifting up of the bridge. Into the interspaces the mass is guided by the warty processes existing in the opening, being at the same time, and by the same means, divided into several portions. Its reflux into the reticulum is prevented by the contraction of the œsophageal groove (Lemoigne).

The irritation produced by the food on the mucous membrane of the opening, causes by reflex action a *contraction of the leaves.* By this contraction they are rendered *tense, firm, and rigid,* and at the same time are *brought forward* to *meet* the approaching mass. The latter movement is produced by the longitudinal fibres, whose fixed point is the muscular enlargement at the anterior end of the leaf; the former, by the action of the central muscular fibres, whose fixed point is at the origin of the leaves, and insertion in the muscular enlargement at the free border. Bearing in mind that the canal beneath the leaves is, by the uplifting of the bridge, almost closed, and that the laminæ are directed towards the reticulum opening, it is clear that the only possible course for the food to take is to pass into the primary chambers; the more so, as they are guided there by the warty elevations which have become, like the leaves, firm and hard. Directly the mass has reached the chambers, the longitudinal fibres are relaxed, and return to their former position, carrying the food with them. The latter is prevented from falling out of the chambers by the direction of the papillæ on the leaves, and by the approximation of enlargement on their free borders. Its maintenance between the leaves is further aided by mutual pressure, like the bricks of an arch. For these reasons no muscular exertion is necessary to retain the food in the interspaces.

The movement of the mass towards the abomasum is effected by the contraction of the muscular structure of both the wall and the leaves. *Each and every contraction of this stomach has, as a result, the pushing forward of the food towards the fourth stomach, because a movement in an anterior direction is, by virtue of the arrangement of the papillæ, rendered impossible.* Further, each narrowing of the psalter-space is accompanied by the raising upwards of the leaves, for their central muscular fibres are derived from the circular fibres of the wall. In this manner the food is passed from the lower to the

* *Zeitschrift für Thiermedicin und Vergleichende Pathologie,* 1876, 3 Band.
† *Recueil de Médecine Vétérinaire,* 1876, p. 481.

upper chambers—that is, from the primary to the secondary, tertiary, and quarternary ones. Everywhere, however, the passage in a posterior direction is fixed by the thousands of papillæ, which can only pass upwards and backwards.

Every movement of any kind, however produced, as well as pressure from without, conduces to this forward movement, just as pressure upon a vein supplied with valves, and every contraction of its walls, results in the passage of the blood towards the heart. The papillæ have the same function in this respect as the valves.

A still further aid is that derived from the constant passing in of new material from the reticulum, by which means a real *vis a tergo* results.

It is improbable that the muscular structure of the laminæ directly exercises any particular influence on this forward movement, for were this the case, the leaves must have their fixed point in the abomasum-opening. This, however, is not the case ; their fixed point is the muscular enlargement situated anteriorly, so that a movement of the leaves towards this point is directly opposed to the forward movement we have described. The emptying of the psalter is not, then, the function of the muscular tissue of the leaves. As it plays quite as small a part in maintaining the masses in the interspaces, may we not with justice ask, What is the function of this muscular apparatus? One function we have already learnt, namely, to bring the firm tense leaves towards the bolus as it enters the stomach ; and, secondly, to raise the food from the lower to the upper chambers. These functions do not, however, explain the great strength of the apparatus. We must, therefore, seek for a still further task which it has to perform, and this consists, according to my views, in the breaking up or pulverisation of those masses of the non-remasticated food which, in an insufficiently divided condition, have gained access to the stomach. This brings us, therefore, to the consideration of question number four.

(To be continued.)

Explanation of the Figures.

FIG. 1.—Schematic representation of the contents of the leaves or caked ingesta in the psalterium. The thick margin and papillæ are purposely well defined. The psalterium furrow or groove is shown at the under margin. The shading on the left is supposed to show one of the primary interspaces filled with food.

FIG. 2.—Section of the wall of the psalterium and the origin of a leaflet. *A*, horny layer ; *b*, soft cellular layer lying on the *propria mucosæ ; c*, muscularis mucosæ ; *d*, sub-mucosa ; *e*, circular muscular fibres ; *f*, longitudinal muscular fibres ; *g*, serosa ; *h*, lateral muscular fibres of the leaflets ; *i*, central muscular fibres of *ditto*.

FIG. 3.—Section of the termination of a leaflet. *A*, central muscular fibres ending in the muscle ridge ; *b*, concentration of the lateral muscular fibres to constitute the thickened border.

FIG. 4.—Longitudinal section of a leaflet, the epithelium of which has been removed in the process of digestion. Stained with hæmotoxylin. *A*, central muscular fibres ; *b*, lateral muscular fibres ; *c*, macroscopic papilla, one of a number ; *d*, microscopic papillæ projecting from the latter ; *e*, muscular fibres ; *f*, blood-vessels. The fixed and mobile connective-tissue cells are seen in the elastic network. The greater part of the connective tissue is transparent, through the action of acids, etc.

FIG. 5.—Longitudinal section of a leaflet, with blood-vessels and lymphatics. *A*, blood-vessels filled with Berlin blue. In each macroscopical papilla is a capillary network. *B*, lymphatic vessels, filled by puncture injection.

FIG. 6.—A portion of the nerve network of a leaflet, with a fibre showing spindle-form enlargement.

PUPILAGE.

THE *Lancet* for May 28th, in commenting on a letter on this subject, and adverse to pupilage, makes the following remarks, which are equally applicable to our profession :—"Our correspondent does scant justice here to the experienced practitioner. He is not likely to be so foolish as to undervalue the knowledge acquired through recent methods by a pupil at the hospital, and from a succession of such pupils, as a system of pupilage would imply, would be kept *au courant* with advancing science, besides having a clinical experience altogether different from that which a student has gone through in hospital work. Our correspondent admits that the dispensaries in educational centres afford ample opportunities for instructing young men in the practice of their profession. The subject of pupilage is coming up again, and though there never will be a reversion to pupilage in its old form, there is an extensive consensus of opinion in favour of a short pupilage at a more or less advanced period of medical study."

BRITISH NATIONAL VETERINARY CONGRESS.

WE are informed that the affairs of the Congress have been pushed forward, so that the arrangements have now become more definite. In the first place *it has been decided to fix the sittings for 20th, 21st, and (perhaps) 22nd July*, these days being more suitable than those originally suggested, which clashed with Cahirmee Fair and the Royal Agricultural Society's Show at Derby. The Committee has had the good fortune to secure the Lecture Theatre of the Society of Arts, John Street, Adelphi, which is admirably situated within a few minutes' walk from the Strand and Charing Cross station. Thus many of our country friends will doubtless find it convenient to combine business with such professional pleasures as the Congress will afford. Of the essays, the manuscripts of all are in the hands of the printer, or already issued from the press, and a copy of each is forwarded to each subscriber, and following the system adopted in the British and British Medical Associations, admission will be by ticket in the case of members and visitors. Thus it is evident that any of our readers desirous of participating in the Congress work, or even of sharing in this more for the advancement of professional interests without actually attending the sittings, should at once send his name and subscription to one of the local or central secretaries. The effects of this meeting of its members should be measured not only by immediate, but also by future benefits. Experience shows that such professional gatherings prove of great advantage by opening up fresh lines for veterinary influence upon the public, and by giving the authorities, civil and military, some insight into the present state of the veterinary profession.

The proceedings will be opened at ten a.m. by election of officers and an address from the chair ; also the reports of the design and progress of the Congress will be read and considered. Then the "major subjects" (soundness, influence of diseases of lower animals on the health of man, cruelty to animals, and legislation against contagious diseases of animals) will be discussed. The method of procedure which answered so well in Brussels last year has been adopted: each member having read the essays and made his notes, should be prepared to launch fluently into discussion as soon as the opener of the debate has resumed his seat. The time allowed to open the discussion will be about twenty minutes, and each subsequent speaker will be allowed ten minutes (to be prolonged at the discretion of the chairman), thus in the longest debate there will be time for at least ten speakers to express their sentiments, and some truth and valuable matter ought to be added to our present knowledge of the important subjects of

debate. It will be endeavoured at the close of each discussion to arrive at some definite conclusion to be submitted to the vote of the meeting.

An hour daily will be devoted to "minor subjects," of which some are announced; thus, for example, "The Congress protests against veterinary surgeons being called to serve on juries," "The Congress protests against meat inspectorships and other veterinary appointments being given to unqualified men, when members of the profession are available," and other such urgent professional views will here be submitted before a large representation of various influential societies, professional bodies, and to the members of the veterinary profession.

Finally, we would urge on our readers that, now they have an opportunity such as has not been afforded before, and may not for some time occur again, of benefiting their profession and themselves, and treating of some matters which can hardly be dealt with elsewhere, we trust the veterinary profession of Great Britain and Ireland (with the Colonies and India) will in this matter be true to itself.

THE FITZWYGRAM PRIZES.

THIS year there was only one competitor for these handsome prizes—Mr. W. W. Dollar, of London, who was awarded the First, value £50, having obtained 908 marks, one half of the maximum. The examiners were Mr. A. G. Rolls, of Arundel, and Mr. J. Fraser, of Newbury.

We must express our astonishment and regret that more interest is not manifested in the competition for these prizes, which are offered in a most commendable spirit. It is impossible for us to divine the reason for the want of zeal and absence of healthy competitive *esprit* among young graduates. In our early professional years, we fancy, had such tempting prizes been offered, a most extensive list of competitors would have been made up, and an exciting contest recorded.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL, HELD 31ST MAY, 1881.

The President, G. FLEMING, Esq., in the chair.

Present—General Sir Frederick Fitzwygram, Jas. Collins, P.V.S.A., Professors Pritchard, Robertson, and Axe; Messrs. Dray, Cox, Batt, Harpley, Coates, Greaves, Whittle, Taylor, Wood, Freeman, Anderton, Blakeway, Reynolds, Morgan, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

Election of President.

Mr. DRAY said it was very gratifying to him to have the privilege and the opportunity of proposing Mr. Fleming as President for the ensuing year. With all due deference to the other members of the Council, he was of opinion that there should not be the slightest hesitation as to the selection that ought to be made. The late President (Mr. Fleming) had conducted the affairs of the Council and of the profession in such an admirable and efficient manner, that the Council would be deficient both in respect and gratitude if they did not seize the present occasion to show their appreciation of his indefatigable efforts in promoting the interests of the profession. To go into detail as to the duties Mr. Fleming had performed, the reforms he

had carried into effect, the other reforms which had been instigated by him and which were now in preparation, would be a work of supererogation. These were patent to all the members of the profession, and he thought they would all agree that no gentleman was so deserving of re-election as their worthy friend, Mr. Fleming. He therefore urged upon the Council to give a unanimous vote in the matter. He was quite aware that he had done but scant justice to Mr. Fleming's literary and linguistic talents. A gentleman with so many varied attainments was seldom met with ; and he hoped the profession would see that the Council estimated their President as they ought to do by re-electing him.

Mr. GREAVES said it had always been thought a just and proper custom that the provincial members should be represented by a president one year and the metropolitan members and professors in another year. Occasionally, however, this had been deviated from, as in the case of Sir Frederick Fitzwygram, when it was felt that it was essential to the interests of the Council and the profession that he should be re-elected. In the present instance they had in hand a matter of great importance, a Bill, which he was informed would be presented in the House of Lords that same evening, and it would require watching. Then there was also the question in regard to an Irish college, in regard to which the President had had interviews with Lord Spencer and Lord Aberdare ; therefore he thought they could not serve the profession better than by electing Mr. Fleming for another year. He had great pleasure in seconding the motion.

Mr. MORGAN said that notwithstanding the eloquent speech of Mr. Dray, he rose to advocate what he considered to be a matter of principle, namely, that no one ought to occupy the chair for more than one year. Mr. Turner had held it for a great many years, probably because he was the first President ; but after he left it it was always understood that no man would be elected twice unless under peculiar or extraordinary circumstances, which he did not think occurred in the present instance. He had as much admiration for Mr. Fleming as Mr. Dray had, but he objected to the principle of re-electing the same President year after year. He knew one or two gentlemen who had been disappointed in regard to this. He had great pleasure in proposing that his friend, Mr. Peter Taylor, be elected President of the College for the ensuing year. He had no doubt that Mr. Taylor would be able to attend to the duties, and Mr. Fleming would be able to assist him in every way he possibly could.

Mr. REYNOLDS said he had great pleasure in seconding Mr. Morgan's motion. No one appreciated more than he did Mr. Fleming's abilities, and what he had done for the profession. He (Mr. Reynolds) thought that the seconder of the motion had paid Mr. Fleming a poor compliment when he implied that he would not do so much good for the profession as if he occupied the chair. He (Mr. Reynolds) had not so low an estimate of the President's willingness to assist in everything relating to the profession, whether he was or was not President. He begged to second the nomination of Mr. Taylor.

Mr. TAYLOR asked for permission to withdraw his name, but the President ruled that this course would be out of order unless Mr. Taylor had another name to propose.

The ballot was then taken, with the following result :—

Mr. Fleming	10
Mr. Taylor	4

Mr. Fleming was then declared duly elected.

Mr. FLEMING thanked the Council very heartily for the honour that had been done him. He felt that every word Mr. Morgan had said was true in

regard to the holding of the chair for more than one year; but he thought that sometimes there were circumstances when this principle ought to be abandoned. The re-election of President on former occasions was amply justified by the work done. There were tasks in which one man might succeed and in which two men might fail. With all due respect to Mr. Taylor, he might say that the work to be done in the ensuing year would have entailed his very frequent attendance in London, but if he had been elected, no one would assist Mr. Taylor more than he himself. He felt that the task for Mr. Taylor would have been very heavy indeed, but he was sure he would receive Mr. Taylor's support. The election had been fairly put and fairly won, and he trusted that the next year would see Mr. Taylor in the chair, when possibly there might be less work in hand. He thanked the Council for their support. There would be heavy demands on their time, purse, and travelling capabilities; but they would submit to all these for the good of the profession. He himself would spare no pains in carrying out his duties, and to do is utmost in the ensuing year of office.

Election of Vice-Presidents.

Mr. DRAY called attention to the irregularity in the attendance at the meetings of the metropolitan Vice-Presidents, and thought that that fact ought to be taken into consideration in the election of Vice-Presidents.

The following gentlemen were then proposed as candidates, and received the votes as under :—

Mr. J. R. Cox	13
„ Woods	10
„ Wragg	9
„ Cartwright	9
„ Dun	9
„ Simpson	8
„ Santy	8
„ Simcocks	6
„ Cartledge	3
Prof. McCall	3
Mr. Dollar	3
„ Broad	2
„ Williams	1
„ Gerrard	1

There being a tie between Mr. Simpson and Mr. Santy, the ballot was again taken, when there voted for—

Mr. Simpson	13
„ Santy	5

Messrs. Cox, Woods, Wragg, Cartwright, Dun, and Simpson were therefore declared elected.

On the motion of Mr. Greaves, seconded by Mr. Whittle, Mr. Dray was unanimously re-elected Treasurer; and on the motion of Mr. Dray, seconded by Mr. Taylor, Mr. Hill was re-elected Secretary, the proposers of both motions expressing their appreciation of the excellent manner in which both Treasurer and Secretary had performed their duties.

Mr. Dray and Mr. Hill in a few words returned thanks; as also did Mr. Cox, on behalf of himself and colleagues, for their election as Vice-Presidents.

After a few explanatory remarks from the President as to the progress of the Veterinary Surgeons' Bill through Parliament, a vote of thanks was accorded to him on the motion of Mr. Dray, and the proceedings terminated.

THE SOUTHERN COUNTIES VETERINARY ASSOCIATION.

THE quarterly meeting of this Association was held at the Royal Kentish Hotel, on June 9th. Mr. G. Fleming, F.R.C.V.S., the President, occupied the chair, and there were also present Mr. J. B. Martin, of Rochester, the Secretary; Messrs. Thomas Greaves (Manchester), Henry Hogbin (Folkestone), R. A. Stock (Lewes), J. D. Barford (Southampton), C. F. Hogben (Dover), T. F. Hogben (Lyminge, Hythe), J. Gibbs (Bromley), Charles Rugg (Sittingbourne), Alfred Glover (Godstone), George Fordham (Willesborough), R. G. Barton (Tunbridge Wells), M. M. Rock (Chelsfield), William Cawthron, (Hadlow), Edward A. Cottingham (Redhill), F. Farrance (Eastbourne), Philip Rock (Chelsfield), T. P. Hounsell (Chertsey), W. Hunting (London) G. A. Banham (London), Captain Russell (Grantham), etc.

The SECRETARY having read the minutes, they were agreed to, and signed by the President. Mr. MARTIN then stated that he had received letters, regretting the inability of the writers to attend, from Mr. Cooper, of Dover, and others.

The PRESIDENT alluded to the benefits the Association would derive from the members exhibiting morbid specimens, and pointed out that this was one of the chief functions of such societies. He said: I think that this Association would be backward if it did not avail itself of the opportunity of affording to each of its members the privilege of exhibiting specimens of disease in different animals at these meetings. I have therefore taken the liberty of bringing before you, this afternoon, two specimens. There has been a great deal of discussion for a number of years as to the exact nature of what is called the Navicular Disease—whether it begins in the bursa which covers the posterior surface of the bone, or whether it commences in the interior of the bone itself. I have held to the view that the disease commences in the bursa. I have given my reasons at different times for this view, and the specimen which I present to-day will to a large extent, if not entirely, support that view. This is the navicular bone of a horse which was affected with fistula of the lateral cartilage. The fistula ran very deep, unfortunately, and the bursa was opened. This is the navicular bone. Now here was a case of inflammation of the bursa, and I contend that in the Navicular Disease the malady commences on the surface of the navicular bone which is in contact with the tendon, and not in the interior of the bone itself. The reasons I have given are these: that in the Navicular Disease, unless it is extremely advanced, we find the articular cartilage, healthy; we never find these two surfaces of the bone involved, but we always find this surface, that which is in contact with the tendon, implicated. This specimen is important, because it supports the views of those who contend that the disease does not begin in the interior, but on the surface. If it began in the interior, we should have the articular surface of the bone and the articular cartilage involved. When you have the whole tissue of the bone involved you have the articular surface; it is only in this very advantaged stage you have this surface diseased. The next specimen is a cystic calculus passed by a mare which belonged to the 4th Dragoon Guards. She had not exhibited any signs of having calculus in the bladder until on the march from Manchester to Aldershot. After being two or three days on the march, symptoms of Colic and severe straining set in, and the mare appeared to be in very great pain. On one occasion, while a trooper was in the stable, she passed this calculus. The mare is now alive. It is an extremely interesting specimen, because it is so surprising that the uretha of a mare could pass so large a substance. It appears to have been attached to the fundus of the bladder, and in that way was not of so much inconvenience as if free in the cavity of the viscus. Its surface is very rough. At both ends it is smooth—one end smoother than

the other, that by which it was attached to the fundus. At the other end it is flatter. I cannot find a case on record in which so large a calculus has been passed during life.

Mr. MARTIN: I can support the President's views concerning this navicular bone. I used to have, and have now, a great many of them. Prof. Spooner always taught us that the disease commenced in the centre, and he used to show it us by sawing the bone in halves. I have several specimens at home where the tendon is attached to this under-surface of the bone, and in which there is no disease whatever in the internal part. I think I have proved satisfactorily that the disease commences on the surface where the flexor tendon passes over. What is the cause? That is what we wish to arrive at. Whether it is a strain upon the tendon that passes over the navicular bone?

Mr. GREAVES: For a number of years I entertained the opinion that the Navicular Disease commenced in the interior of the bone—the interior of the navicular bone. I remember I read several papers on the subject, and I investigated it with great care. I felt convinced I was right. Since then certain cases have come before me that have made me waver in my opinion. I believe there are numbers of cases where it commences on the outside of the bone. I believe it may occasionally be found commencing at the outside, and occasionally commencing in the interior. I don't think that either case is always present, but I believe that in nearly every case it is constitutional. There is a hereditary predisposition to take the disease. Unless that exists you may work horses as hard as you like, either with thick heels or thin heels, and you cannot produce Navicular Disease; you may produce Laminitis. In reference to the calculus, I have not seen more than one or two cases that I can remember in my life. I remember when I was an apprentice a horse coming frequently to our place with intense abdominal pains. My master used to treat it for Colic. It was in intense suffering, and the perspiration over and over again ran down the horse from head to foot. I should think it came to our place about once a month for a twelvemonth. It died in the end. We found in the bladder a large calculus three times the size of that one. I think, though I am not able to say for certain, my master was not aware that that was the case. It is now forty-six or forty-seven years ago, and I cannot speak for certain that he was apprehensive of that calculus. The pain was more acute than in common Colic in horses. I know of no treatment that can be of any avail. I remember seeing Professor Spooner breaking down a calculus and removing it, but the horse died. I have never seen it attempted but once.

Mr. BARFORD: Mr. President, I should like to corroborate what you have advanced. I have made a very great number of *post-mortem* examinations, and I am perfectly convinced that this Navicular Disease commences in the synovial membrane. Where I have found caries in one instance, I have found inflammation of the synovial membrane in twenty or thirty. As regards that most interesting calculus, I consider the case altogether most unique. In the first place I never heard of or saw one that size having been passed without assistance. I think there cannot be a doubt it must have been attached to some part of the bladder; I am convinced in my own mind it never could have attained that very large size without producing very serious inconvenience. I can speak personally, having had myself to go through Lithotomy. I had a stone of some considerable size extracted from my bladder by the operation of Lithotomy, and it was, I am convinced, the movable character of that stone that caused me the inconvenience. In my case it formed a pouch for itself immediately between the neck of the bladder and the prostrate gland, which caused the operators most extreme difficulty. On three separate occasions they placed me under the influence of chloroform.

On neither occasion could they grasp the stone, from the circumstance that it got into this pouch and completely thwarted all their efforts. I was obliged to subject myself to Lithotomy, and with very great success.

Mr. GREAVES then read his paper on Pupilage and the Penal Act.

The PRESIDENT said they had heard the very elaborate, the very interesting, and very argumentative paper read by their friend Mr. Greaves, who had journeyed a long way to read it to them ; it was a paper which deserved their full consideration. It had been already discussed at several meetings elsewhere, and he was sure that the subjects to which allusion had been made in the paper were worthy of the deepest consideration. (Hear, hear.) It was the question of the day, the education of the veterinary surgeon, and he thought no subject could have been more fitly introduced at this meeting for discussion. He therefore asked them to discuss it in the most reasonable terms they could employ. Mr. Greaves had spoken as he felt, and he (the President) asked that the paper should be treated in the same way. Gentlemen should not be afraid to speak their minds, though in such a way that they should avoid creating dissension or illwill. They should remember they were united for one purpose—the promotion of their science. At the very foundation of this promotion lay the question of education ; therefore he trusted those who spoke would give it the importance it deserved, and do their friend Mr. Greaves the justice to believe that he had written that which he fully believed.

Mr. MARTIN said the Bill which was now before Parliament was one which was of the greatest importance to the profession, and they were deeply indebted to their friend Mr. Fleming for the pains he had taken in getting the Bill introduced with success so far. He thought Mr. Greaves, in his paper, had been rather too severe on the quack. He should hardly like to see it go before the public in such severe terms. Their object was not the total extinction of unqualified men. Of course, they now knew him as an impostor, assuming a title which he had no right to practise under. Mr. Greaves sought to utterly extinguish this man altogether. He didn't think the House of Commons would allow this. All they wanted was that this man should not assume their title, and not practise under a false name—let him call himself what he liked, and let the public employ him if they liked, but at present they had no means of discriminating between the qualified and unqualified men ; there were some unqualified men who did good work. The public seemed to be under the impression that the Association wished to deprive these men of getting a living, and were rather condemning them. He wished the public to understand that was not their object ; all they wanted was that these men should be known under their proper names. He hoped the veterinary surgeons of England would prove themselves worthy of the protection sought. It was a privilege which the medical and legal professions already enjoyed, and he thought the veterinary profession had a perfect right to protect themselves also. He should like the President on some future occasion—for he knew of no one more able—to write a paper on the subject of Rot in sheep, which had ruined so many hundreds of farmers. The President was a man with brains enough to enter into all the details and the natural history of the liver fluke, and also the *Filaria bronchiailis* in the lambs, which has of late killed so many. What the farmers desired was a preventive, as they knew it was not curable. It was most important that they should discuss such questions, and then it would go forth to the world that they were met together for the purpose of doing some good to agriculturists. By doing so they would show themselves worthy of the protection and privilege they desired. These meetings were useful in bringing the profession before the public. As regarded the Apprenticeship question, it had been so thoroughly dealt with by Mr. Greaves, who

had advanced all the reasons in favour of it, that he (the speaker) could only say that he fully approved of it, excepting so far that he believed the apprenticeship should be for three years instead of one. A young fellow going into college without a practical knowledge of the world, and then turned out to get a living in it, seemed to him to be perfectly absurd. Let him be shown canker in a horse's foot, of a case of parturition, and where would he be without experience? Mr. Fleming had taken a practical course in being instrumental in making it compulsory. He quite agreed with the Pupilage question. He should like to hear the President express his views on the whole matter. He might say with regard to his own district he held several appointments, and since the last restrictions issued by the Privy Council they had not had a single case of Pleuro-pneumonia, though it had hitherto been a hot-bed of disease. He mentioned this because a great many of the public, and particularly dealing men in the cattle trade, had frivolously called it all humbug.

Mr. HUNTING said: Mr. Greaves had treated in his paper two different subjects, but there was a very strong connection between them. He wished to point out how illogical that paper was. Mr. Greaves had made a lot of comparisons between the theoretical, so called, and the practical man, both of them utter chimeras, inasmuch as neither the classical nor practical man has ever been seen. His descriptions were what these men ought to be, or might be if they aimed at perfection. The practical man did everything well except speak the Queen's English, makes no mistake, will make the strictest diagnosis of every case, will know the exact *locale* of lameness when he sees it, and he obtained all this knowledge, how? By apprenticeship. Did they know a man who had never made a mistake? Was there never such a mistake made as to say a horse was lame in one leg, when the lameness was in the other? This was no uncommon occurrence, and there was legitimate room for difference of opinion as to where a horse was lame. Because a young man should make a mistake for once in his life in this way, was no real reason for believing that that man would make a similar mistake again. It seemed to him that the examiners had got it into their heads that a young man should turn out of the college just as good as an old practitioner. The thing was utterly impossible that a young man should turn out of college equally as good a man as one who had been there for twenty years. The illogicalness of the paper read by Mr. Greaves was this: he speaks evil of everything, of the professor, of the third session at college, and everything that tended to cultivate a man's mind, yet everything good was the apprenticeship and practice. If there was a practical man in the world, a man utterly free from this classical knowledge, it surely should be the quack and impostor—a man who had never seen that awful place, the college; a man turned out in the "clean-fingered groove." He would say that, logically, Mr. Greaves ought not to attempt the Penal Clause; he should support the quack and impostor. What was it he insisted upon? The quack and impostor had everything real that Mr. Greaves made out as great and good: the simple fact was this, Mr. Greaves, in attempting to prove his argument, had proved too much. Mr. Greaves had the advantage of time in which to prepare his paper, and he took one by storm by his rhetoric, he misled and caused them to form resolutions without thinking. No one wished to deny the value of practice. It was utterly impossible for a man to learn his profession from books or colleges alone; it was still more impossible for him to learn his profession without books or teachers. They would be in the position of their great-grandfathers, were it not for books and teachers, and they would arrive at the next stage in the next hundred years if Mr. Greaves had to do away with everything he spoke evil of. Professors were not simply men as they at that meeting were; they were men whose tastes suggested a professional

life, who had a tendency to follow scientific pursuits—men selected for ability to teach others, having the knowledge as well as the power to teach ; they were not simply veterinary surgeons picked up here and there. They were asked why practical men should not be good teachers ; it was because they had no more inclination that way than they had time, and as a rule no convenience. The simple differences between his views and those of his friend Mr. Greaves were these : You should teach a man to think before you teach him to act ; teach him the principles, or endeavour to teach him the principles, before he endeavours to learn the practice : before a man can do a thing he must think over what he is going to do; you should not commence an operation or diagnose the treatment of a case unless you think of it. There is no such thing as intuitive knowledge, you are just as likely to arrive at the wrong as the right conclusion ; if you are taught principles, and taught to think properly, then the probability is that you will act right. Now he would proceed to the books and literature to which Mr. Greaves had such a dislike. Lectures, teaching, reading, these were all nonsense, and he did not understand that books were of any value. Books were written by the best men of the profession as a rule, and a number of them contained all that was good and all that was worth remembering—the result of the experience not of one, but of hundreds. Reading a well-written book they got the ideas of the author, they got the result not of the man's experience only, but of every man's experience who had communicated anything on the subject. What he wished to say was this : that a student fresh from school, a boy fresh from school, when he was taught to think, should go on in the mental training he had had, and should take one session at college ; he would there be able to think and continue his course of thinking better than in any other way, and he might then, if he liked, make a break in it and go back to his parents or guardians. If he did that he would pick up just sufficient knowledge of anatomy, animal physiology, and chemistry to understand a good deal of what he saw, and he would also pick up that which was very important—just sufficient knowledge of the technical terms to be able to read well while at college and at practice, and to keep up and increase the little book-learning he gained at college. He might say for himself that when he left college he missed a session and went home. He had then an opportunity of seeing a great number of cases with his father ; for although he spoke against apprenticeship, he had an apprenticeship with his father. He never learnt more than he did in that intermediate period, because he made it a practice of looking up in every book he came across the cases which had come under his observation. He would say, then, that the proper thing to do was not to insist upon this apprenticeship before a man went to college, but let him go to college first and get his practical knowledge afterwards. As to the compulsory part of the Bill he had an objection to that, but it was merely an objection which every man might differ with. There there was plenty of room for difference of opinion. When they made a thing compulsory it was not of much more importance. He would say they had no right to make a thing compulsory unless they were perfectly sure they were legally right, and that they would obtain some end they would not otherwise obtain. In this case the Council had rushed in and passed a bye-law without knowing whether they had a legal right or not. They had had legal opinion, but they were going to get more, which showed that they did not know whether they were legally right or not. As to the moral right or expediency of it, if you make a thing compulsory you make it more distasteful. If any man goes through anything, if he is compelled to do it, he will do it and then stop. That was human nature. This would be the case when they compelled a man to go twelve months to a veterinary surgeon as an apprenticeship, just to get a certificate. Some men would take pupils just to suit their own convenience,

and not at all with the object of carrying out the huge transcendental notions of Mr. Greaves! If a man could not examine a student properly, that man had better resign his post. He could understand that a man who never taught could not examine. It was not at all difficult to test by examination a man's knowledge, and it certainly did not require that they should have fifty cases of parturition or any other thing which they could find in the index of pathology. This was simply utter nonsense that they should have something like 500 animals to operate upon before they could be considered fit to be sent from college. A man would not see two or three cases of everything mentioned by Mr. Greaves in the practice of any one single man in the kingdom; they might see perhaps forty of one thing, and perhaps fifty of another. His (the speaker's) argument was that they should not send a man for twelve months' pupilage to any one he liked to go to in order to get a certificate. To say that that would ensure getting a practical man, would be deceiving the public. This was no safeguard at all that a man should spend twelve months with any man who might happen to hold a diploma. It was utterly impossible and utterly wrong and unfair to expect that a man of twenty-two should know as much as a man of thirty or thirty-one.

Mr. MARTIN would like to understand Mr. Hunting's meaning. He would take two young men from school. They would have to be taught a little practical knowledge of the world as well as of the profession. Did he understand Mr. Hunting to mean that these young men should not have any practical knowledge before they went to college? Then Mr. Hunting objected to its being compulsory. If they had to compete against these unqualified men, he did not know of anything more detrimental than a want of practical knowledge. If they did not know how to take up a horse's foot or treat a quittor, he did not know of anything more detrimental or calculated to lower the profession in the eyes of the public than such a lad going into the world to gain his practical knowledge at the expense of the public. If it was necessary the student should have practical knowledge, then it ought to be made compulsory. Now that the Bill had been passed so far, it was rather important to them as a body that they should not relax their energies. When the Bill had got into the House of Commons they should still agitate—individually and collectively they could do a great deal. It was necessary they should show it was important that they were better men than the quacks who were ignorant of anatomy, physiology, and the materia medica; who were groping about in the dark, knowing nothing at all about principles, and making sometimes random cures upon speculative guesses. They should show Members of Parliament that they had knowledge of scientific principles, were better men, better capable of treating their animals than these ignorant pretenders; they should throw off all apathy, and he was pleased to see they were getting more zealous in the advancement of their profession.

Mr. BARFORD considered they had met together to discuss this subject in an impartial manner. At this present crisis there was nothing more important. They were about to apply to Parliament for a Penal Act to prevent those who had not obtained a diploma of the Royal College of Veterinary Surgeons, taking to themselves a title they have no right to. It behoved them as a body to look more and more to themselves. They were about to take a position they had never taken before in the eyes of the public, and the public would very naturally look to them for something in response to what they were applying for. He could not conceive anything more advantageous to the profession than to endeavour to send out young men who had obtained a diploma, who would be a credit to the profession they were so proud of. It was their work to show the public that they were really in advance of those who wished to use their title, if not their practice.

If by any means they could further the advancement they would be moving a step in the right direction. With all due respect to Mr. Hunting, he failed to find from Mr. Greaves' remarks that he for one moment depreciated scientific education. He was certainly of opinion that Mr. Greaves' remarks were totally to the contrary. In advancing the Apprenticeship Clause they did not for one moment—and he should disagree with them if they did—depreciate in any iota the advancement and the extreme value of that highly scientific education which was necessary to make an efficient veterinary surgeon. That had not been conveyed to his mind. He must confess that during the last fifteen or twenty years he had had many assistants immediately after receiving their diplomas who were no more fit to start in the world and get their own living as veterinary surgeons than if they had not been to college at all. He had had young men who had never bled a horse, who had never inserted a seton, who had never cast a horse, or performed any of the ordinary things expected of a veterinary surgeon. He was convinced that nothing made such an impression on the public as the way in which they proceeded with their ordinary work, the way in which they manipulated horses in every sense of the word. If a young man did not obtain practical knowledge (he cared not whether he went one session to a college first, and then into the country), and getting his diploma, went into the country with the expectation of obtaining a livelihood, he pitied him. It would be purely an exceptional case if he succeeded. He believed the bye-law was a step in the right direction. They had to acquire this knowledge from continued observation ; they had got all their diagnoses to make from observation, and he was satisfied it was only obtained by close observation. From what he knew of the curriculum and the teaching of the Camden Town College, a young man would utterly fail if he thought he was going to learn it there. He was very glad to find an attempt made at a practical examination, and he hoped that would be continued. And amongst all this he trusted that the teaching power of the colleges would go on with the extension of examinations. He was sorry to say at the present moment he did not think it quite up to the mark from all he could hear. He had had many young men with him these last few months, and it seemed to him to be a rather lamentable state of things, that the Principal of the College, a gentleman he highly esteemed, now over seventy years of age, was prostrated by a very serious illness ; that they had had the loss of Professor Pritchard, and Mr. Steel, a very excellent man ; and who had been brought as a substitute? He rejoiced to hear that they had got such a man as Mr. Robertson, for a more energetic and hard-working man there could not be. He ventured to say, therefore, that the teaching staff at our colleges was not commensurate. If they did not speak out on these occasions the Association would be worthless, and he could not help thinking that a memorial from this Association should go to the governors of colleges.

Captain RUSSELL had listened to the remarks made with very great pleasure, particularly those of the last speaker. His friend Mr. Hunting was perhaps a little too energetic in his language, and had said perhaps a little more than he intended to convey by his remarks as to the great importance of the Penal and Apprenticeship laws. Although he had no doubt in his own mind they made the quack too great a bugbear, he was to be lived down and conquered. He had found in his own experience they had their forefathers to thank for them. Had it not been for them, there would not now be a quack in existence, whereas at the present time in his own neighbourhood there were within a radius of thirteen miles no less than eleven. This was owing to the men before this generation spending their evenings in public-houses and refusing to attend to urgent cases. The result was, the quack grew up. If men would only stick to their work these would soon be

overcome. At the same time the public should know they had qualifications as veterinary surgeons. With reference to the educational test there could not be a doubt. He had been entrusted with the education of two or three pupils and assistants, and a few years ago he took an assistant who had passed with very great credit, taking a Spooner and silver medal, yet he did not know an abscess when he saw one, nor did he know how to open it. That was simply because he had not practice. Afterwards he became a very efficient assistant, and is now in practice for himself doing very well. This last year a qualified man came to him, but he knew nothing of practice, and one day he packed up his things and decamped. There was no doubt practice was essential.

The PRESIDENT said these subjects were of the highest importance to the profession at the present moment—the Veterinary Surgeons' Bill and the Pupilage Bye-law. They had both been before the profession for some time, and they had been, he thought, somewhat largely discussed; nevertheless, it was well that here, at the Southern Counties meeting, they should be still further discussed. The Veterinary Surgeons' Bill had become a fact, insomuch as it had successfully passed the second reading of the House of Lords. So far he had redeemed his promise to the profession, so far he had accomplished a portion of the work he undertook to perform, and which he trusted he should carry successfully to the end. (Cheers.) The reports as to what took place differed in the daily papers, and some of them were sadly inaccurate. They were very brief, and would not convey to the mind of the profession the real facts. What the Royal College demanded was the protection of its title. They simply said their Charter had given them a title, and therefore, after spending much time, much money, and much labour, they had a right to have that title protected—it was their trade-mark, it was the mark by which they were known to the public. Surgeons and solicitors were protected, and why not veterinary surgeons? That was the feeling throughout the country—it was the feeling of justice towards those men and the public. The Bill would perhaps meet with more opposition in the Lower House, but he was satisfied it would meet with as good a reception. There might be some alterations made in the clauses; perhaps the third clause was a little too restrictive. But whatever amendments were made, he was sure they would believe their interests and those of the public had not been sacrificed. The Bill was in good hands, in the hands of business men who understood well the position of all parties. They would find they had obtained all that was necessary to put them on a new footing in their relations to the public, and in a much more satisfactory condition with regard to their own future. With regard to the necessity for such a Bill, that had long been apparent. A feeling of hardship had been increasing every year. Whenever a student was rejected as an incompetent man he passed into practice and designated himself a Member of the Royal College of Veterinary Surgeons, and by these means imposed upon the public. They had no desire to injure any person's business or prospects; all they desired to do was to protect their own title. They had now the power of expulsion of members who did not behave themselves, but they had no hold upon the man who adopted their title; their professional reputation was at the mercy of such men. Many of these men were of the most degraded character, and the veterinary surgeons were simply asking a right. With regard to the question of pupilage, Mr. Hunting spoke strong, and he very often spoke wrong, especially when he said the bye-law was passed hurriedly. There he had made a very grave charge, and a very grave mistake. The subject had received attention; for a great many years it had been, to his knowledge, ever since these societies were founded. It had been discussed fairly, too, because he maintained if the

veterinary surgeon could not use his influence, if he could not put into practice his scientific knowledge to the advantage of his employer, then he was a disgrace to the profession. The mode in which this knowledge was to be acquired was, of course, the one which required most consideration. It was evident that the knowledge could not be acquired at any of the colleges. All would remember how they were taught, what their tuition had been, and the amount of practical knowledge acquired. So far as practice went it was absolutely deficient. The student studied the requisite period, and the number of cases he saw was very small. Rarely indeed was he allowed to put his hand to a case. What would they have thought of him if he had gone into practice immediately after getting his diploma? The best examiners in the world, unless given the advantage of examining fairly and well, could not test the practical knowledge of a student in the way desired. There was the student referred to by Captain Russell, who did not know an abscess, nor know how to open it. Perhaps he had never seen one during the whole period at college. This was a serious question. It was not a question for cavil, for personalities; it was a question that affected the well-being of the profession, upon which their reputation and utility must hang. It was impossible for a student to acquire at college the knowledge of details which were so important to him in practice. How many men were taught to pick up a horse's foot, and pull off a shoe, and such little points of apparently minor detail within which the deficiency of knowledge is found out? He was of opinion this pupilage would be a great boon to the profession and the public. The question of time had been very wisely left open. As to the Bye-law there was no doubt in his own mind, or in that of the Royal College, of enforcing that power; but if it should be decided by Counsel that the College has not the power to improve the condition of the people, then he would say that power should be obtained, and immediately. The Royal College was a body responsible for the position of the profession, for the proficiency and efficiency of its graduates, and if it failed in its duty it would deserve the severest rebuke that could be administered, and that would be the taking away of its Charter. The country was looking to it for most important services, and it would be to the interest of the profession to improve the teaching in every possible way. It was only through the College and its examinations that the improvements could be effected, and with all due respect to those people who rely absolutely upon the practical man, he would say this, that the veterinary surgeon must not only be a practical man, but a scientific practitioner—a man who understood science; a man who was fully alive to what would best promote the interest of the public and the profession; who adopts everything new and beneficial, and puts them into practice with an intelligent mind. What they wanted were men of brains. To produce such men must be the object of the Royal College; to encourage such men should be the object of the profession. They might sometimes differ as to the way in which these improvements should be produced, but they should never differ as to their production. With regard to the teaching power of the colleges, he could not see how the profession could interfere in the economy of the schools. Although the teaching power might be deficient—he did not say it was so—nevertheless he could not see how the profession itself could approach the management of the schools. It was for the Royal College to say that the students who go up for examination should produce evidence of mental and physical ability, that the men are competent to be ushered into public life according to the value placed upon their diploma. He did not see that any memorial would be of any avail, and was afraid the governors would resent it as an interference. Mr. Greaves's paper had given them an opportunity of ventilating a very important subject which this society had undertaken to carry out, and they

should do it to the utmost of their power, not only for their individual benefit, but of the entire community. He was of opinion that the better they could educate a man, both professionally and generally, the better practitioner he became. Education was at the bottom of the profession, and the more they tried to raise it the better they would be appreciated by the public, and the higher they would stand in the public estimation.

Mr. GREAVES, in replying to the remarks which had been made by different members, said there was very little left for him to do, for every member who had spoken had agreed with him entirely. The only gentleman who differed was Mr. Hunting, and that gentleman had misunderstood him entirely. He imagined a youth should be taught modern knowledge, that he should read all the modern works of the profession, and be taught at college, and should not go into practice until he had obtained his diploma. In that they were agreed. The only point they differed in was the time for instilling the knowledge. Mr. Hunting had said let him go to school until he is of a certain age, then let him go to college. He (the speaker) said he should be taught to work amongst horses, and if he had not learnt all by the time he was twenty-one years of age, he would never get handy amongst horses in his life. They were agreed that youths should be well educated, that they should be practically taught, and that there should be a pupilage with a veterinary surgeon. He should be very glad if the question were put to the meeting and see how many hands would be held up for the practical teaching with pupilage or apprenticeship, and they would then have some idea what the southern gentlemen thought of it.

The PRESIDENT said it was very unusual to adopt such a course, but as Mr. Greaves was anxious to know how far his paper was in harmony with the opinion of those present, he would put the question to the vote. He then put the question, when all voted in favour of it.

Mr. HUNTING said he had voted in favour of the question, and there must be a logical mistake somewhere.

Mr. BANHAM said perhaps he could clear up the mystery. What Mr. Hunting disagreed with was the forcing of the pupil to serve under a practitioner. He (the speaker) could not see why objection should be taken to that simply because it was compulsory. If they went to school they were made to learn their lessons, not because they liked them; and they had to attend a certain number of lectures, not because they liked them.

The PRESIDENT said he had omitted to state that no one could find fault with the Royal College of Veterinary Surgeons for making it compulsory, for if they had left it voluntary they would be in exactly the same position as before. Everything must be compulsory. It had passed bye-laws which made its own actions compulsory; if everything was left to be done by the Council voluntarily, no work would be done.

Mr. HUNTING said that not a single student had lately left Camden Town College without having the opportunity of performing operations if required. Since Professor Robertson had been there, operations had been performed by the students. He knew men at the College last session whom he would back against many men who had been only twelve months with a practitioner. He still maintained that twelve months' pupilage ensured nothing.

Mr. BARFORD said it was new to him that students were allowed to operate at the Camden Town College. Nothing of the kind had ever been done before, and he rejoiced to hear it.

The PRESIDENT said he was an examiner himself. He did not care what school it was, they had no school in this country which could teach the student that amount of practical knowledge which he could acquire in the very first days of his practice. When he left college he went into practice, and

the very first night he was called out of bed to attend a case of parturition. Was there any school at which the student had an opportunity of studying obstetrics and handling animals, sheep, pigs, bullocks, and horses? There was a kind of practice in practice which was never seen at a college. They should look at things as they were, not as they should like them. Let the young man have a chance of acquiring a certain amount of practical knowledge, then they could with more safety give him a diploma.

Mr. HUNTING: Would a student be rejected simply because he knew nothing of parturition?

The PRESIDENT was of opinion he decidedly should. Before they concluded he wished to propose a cordial vote of thanks to Mr. Greaves for his paper. He was a gentleman well known throughout the profession as a most indefatigable traveller, a great enthusiast for professional advancement and for the professional weal, and the least they could do was to tender him a hearty vote of thanks.

Mr. BARFORD seconded. They were indebted to Mr. Greaves for the numberless ways in which he had advanced the interests of the profession.

The vote having been carried unanimously,

Mr. GREAVES suitably acknowledged the compliment paid him.

Mr. BANHAM desired to call the attention of the meeting to the proposed Congress, which had been adjourned from the 13th and 14th to the 20th and 21st July, because of the Royal Agricultural Show. They were getting on very favourably, and he believed they would have a very successful meeting. Mr. Martin had kindly undertaken the duties of secretary for this district, and would be pleased to receive subscriptions.

It was decided to hold the next meeting at Brighton in preference to Eastbourne, and the proceedings terminated.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE sixty-seventh quarterly meeting of this Association was held at the Medical Institute, Hope Street, on Friday evening, May 13th, 1881; the President, C. W. Elam, Esq., in the chair.

The minutes of the previous meeting having been read and confirmed, the Secretary nominated Mr. D. Webster, of Ormskirk, and Mr. Reynolds and Mr. Bain, of Liverpool, as members of the Association.

Mr. R. C. EDWARDS communicated two cases: first, a case of Tympanitis, successfully treated by puncturing the intestines. He said: In this case the patient—a 'bus-horse, aged fourteen—was brought to my place on a Tuesday morning, showing symptoms of Colic. A subcutaneous injection of morphia was given with early relief. A dose of oil was also at the same time administered. During the remainder of the day the animal was free from pain. I, however, saw him again at twelve o'clock at night, when I found that the pain had returned, and finding also that the bowels distended, I gave him a dose of Ol. Lini and Spts. Terebinth. I then left him, leaving instructions with my assistant to call me at five in the morning if the patient still showed signs of pain. This, however, was not the case, but at eight o'clock I saw him again. The bowels were greatly distended, the pulse quick and small, and the respirations accelerated; the mouth was clammy, and the body was bedewed with cold perspirations. I then immediately determined to puncture, as advised by Mr. Faulkner. I punctured in the right iliac region. On the withdrawal of the trocar a large quantity of gas followed. After the operation the animal stood in one particular spot for two hours, and then commenced to nibble hay.

Although the animal was three weeks before he regained his proper appetite and was fit for work, still I deemed the case a success. No pain was

exhibited after the puncture, except on the third day, when a slight grunt was emitted when the animal was made to stand over. The skin wound healed by the first intention.

The second case is one of Traumatic Tetanus, successfully treated by Bromide of Potassium and Atropia.

The patient was a grey cart gelding, four years old, the property of a brewer in Chester. He had been pricked in the off fore-foot a week before, and had been treated by the shoeing-smith.

I first saw him at seven a.m. on the 11th of March, he having been unwell and stiff for a couple of days, and was becoming gradually worse. All the muscles were apparently in a state of severe spasm, the jaws had very little motion, and the body seemed to possess no joints. I shall not give you a daily account of the symptoms, but give you the treatment I adopted, and mention notable days, etc.

For the first four days I gave him ʒii. of Potass. Bromid. in a bucketful of thin boiled oatmeal gruel, also subcutaneously injected gr. ss. Atropia in solution. This was repeated every twelve hours.

On the fifth day the horse was grinding his teeth. Instead of the Potass. Bromid. I gave him ʒii. of Soda Carb. in his gruel in the morning, also injected the Atropia as before. In the evening the horse was much worse, the spasms greater. He had not eaten his mash, but had taken part of his gruel; repeated the Soda Carb. and Atropia. On the sixth day he became rather worse, could not move his jaws, had taken very little of his gruel, and not eaten any of his mash. I injected three-quarters of a grain of Atropia. In about two hours afterwards he went down, and remained so for six hours, when he commenced to struggle. I then gave him ʒii. of Chloral Hydrate subcutaneously, got several men to roll him on his belly, and brought his fore-legs forward as well as possible (two men to pull at and steady his head), when he got up at one jump. Shortly afterwards he drank a bucketful of warm gruel containing ʒii. of Potass. Bromid.: the grinding of his teeth had now ceased. In the morning he ate his mash and drank his gruel; gave the Potass. Bromid. and half gr. of Atropia as before. The next three days he got the same treatment, and the twelfth day from the first symptom being noticed. On this day the horse was considerably better; could eat and drink freely. We now gave him some long hay, also oats in his mashes.

The next three days he got every twelve hours Potass. Bromid. ʒi., and P. Nux Vomica ʒi. in his food, also half a grain of Atropia subcutaneously. On the following day, viz., the sixteenth of the disease, the horse commenced to purge, grind his teeth, and show symptoms of acidity. I then stopped his gruel and the Potass. Bromid. I gave him ʒii. of Soda Carb. in his food every twelve hours for three doses, continuing the Atropia as before, when the purging ceased. He was then put on dry food, with one bran mash in the evening, and water substituted for the gruel.

The next four days he got his usual doses of Atropia morning and evening, and in his food Ferri. Sulph. ʒi., Colchicum ʒi., Nux Vomica ʒss. twice a day. We have now arrived at the twenty-first day of the disease; the animal has been gradually improving since the twelfth day. I now ceased giving him the Atropia, he being able to eat off the floor; the future medicinal agents being mineral and vegetable tonics for twelve days, Cupri Sulph. apparently doing the most good.

On the thirty-third day of the disease I saw him, and he was doing well, the offending muscles being those of the extremities and the right retractor muscle of the eye.

On the fifty-second day I again saw him; he had not quite recovered; walking rather stilty, in other respects all right. On the fifty-seventh day he had quite recovered, and took out his first load.

On the seventh, sixteenth, and twenty-first days of the disease he went down and got up with assistance. On the twenty-fifth day he went down and got up without assistance.

The patient was kept in a darkened loose-box, and was noticed to keep his head in the darkest corner; his shoes were removed, and sawdust used for bedding; no clothing, although the weather was cold. The place of puncture for the subcutaneous injection of Chloral Hydrate produced a very troublesome abscess, but the places of puncture for Atropia produced no local effects.

In conclusion, I beg to state that I am not in a position to say that the successful issue of this case of Traumatic Tetanus is due to the administration of Potass. Bromid. or Atropia, or both; but I can tell you this fact, that the animal has had a very bad attack of Tetanus, that he has recovered, and is now a useful horse.

The SECRETARY gave the history, with recovery, of a case of fracture of the Os suffraginis and Os coronæ.

A lively and interesting discussion followed each case, in which all present joined; and a vote of thanks having been awarded to Mr. Edwards and the President, the meeting closed.

At the close of the meeting, the President announced that Prof. Axe would read a paper at the next meeting, which will be held on the 12th of August next.

WM. LEATHER, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association was held at the Turk's Head Hotel, Greg Street, Newcastle-upon-Tyne, on Friday, May 27th, 1881. The President, Mr. W. J. Mulvey, Bishop Auckland, in the chair. Present, Professor Walley; Messrs. Davey, D. Dudgeon, Sunderland; M. Hedley, Darlington; G. Farrow, junior, Durham; W. Grieve, Blaydon-on-Tyne; W. Wheatley, South Shields; J. Gofton, North Shields; A. Chivas, Corbridge-on-Tyne; W. W. Stuart, C. Stephenson, A. Hunter, H. Hunter, W. Hunter, J. H. Wilson, and the Secretary, Newcastle-upon-Tyne.

Letters of apology were received from Professors W. Williams and W. Robertson, Messrs. T. Greaves, G. M. Mitchell, T. Foreman, W. Awde, H. Peele, W. T. Briggs, and R. Bulman.

The minutes of the previous meeting having been taken as read, the following gentlemen were unanimously elected members of the Association:—Messrs. J. H. Wilson, Newcastle-upon-Tyne; H. Peele, West Hartlepool; and W. T. Briggs, Darlington.

The following gentlemen were nominated for election at the next meeting:—Professor Walley, honorary associate, Messrs. C. S. Hunting, South Hetton; and W. W. Smart, Newcastle-upon-Tyne; as members.

The SECRETARY announced that he had received a letter and circular from Mr. Steel, one of the Central Secretaries of the British National Veterinary Congress, and on the fly-leaf of the circular that those only were eligible as members who were graduates of the R.C.V.S. He had written to Mr. Steel, saying that he should be most happy to do all he could for the movement, and asked him to send a subscription-book.

After an animated discussion as to the propriety of excluding veterinary surgeons not members of the R.C.V.S. as members of the Congress, most of the members present thought the ruling with regard to admission to the Congress a trifling one. If the members of the profession who only held the Highland Society's diploma were so little interested as to neglect taking the diploma of the R.C.V.S., on account of the payment of a guinea, they would hardly care to go to London and attend the Congress under any

circumstances. At the same time they would rather that the Congress had been on a broad basis.

Mr. GOFTON could only look upon the action of the originating committee in excluding men who hold the Highland and Agricultural Society's diploma as a very unwise and altogether unnecessary step, and calculated to introduce ill-feeling, and probably also damage the ultimate success of the Congress; and he moved "That this Association respectfully request the originating committee to re-consider their decision on this matter."

The CHAIRMAN remarked that if the Bill then before Parliament became law in the course of some little time, then the holders of the Highland Society's certificate would not be recognized veterinary surgeons; so that it would be stultifying themselves if the holders of such certificates were admitted to the Congress.

The motion was not seconded and the discussion dropped.

The PRESIDENT then delivered his inaugural address:—

Gentlemen,—On opening office as your President I must first tender you my thanks for the high honour you have conferred upon me. I should have preferred to have worked for the good of our Association in a more humble capacity; but as it is your wish that I should preside over your meetings for the ensuing twelve months, I must ask both for your forbearance and support, knowing and feeling as I do how difficult a task I have to perform in following in the footsteps of the many eminent men who have occupied the presidential chair of the North of England Veterinary Medical Association.

It is not my intention, gentlemen, to trouble you with any lengthy inaugural address, as our time will be more profitably and agreeably occupied in listening to Professor Walley; but there are two or three topics that are just now occupying the attention of the profession to which I should like briefly to refer. We live in stirring times, in the days of board-schools and competitive examinations, when every chimney-sweep's son has to pass an examination that in our early days would have been thought sufficient for a learned professor; so that it would ill become the veterinary profession to be standing still, and we cannot but be glad to find that the governing body of the Royal College of Veterinary Surgeons are to a certain extent alive to the requirements of the age, and that during the last few years they have made great additions both to the educational and professional examinations of the students. But one of the most recent acts of that august body has called forth a great deal of adverse criticism. I allude to the by-law which is to come into operation in the year 1884, which enacts that every student before presenting himself for the final examination shall serve at least twelve months' pupilage with a M.R.C.V.S. On this point there are great differences of opinion amongst the members of the profession, and I must enrol myself amongst those that are opposed to it. But first let us ask ourselves what has produced this enactment. It has been said, and justly said, that there are numbers of men who have passed the examining board of the R.C.V.S., and been granted the diploma of that body certifying that they are qualified to practise the art and science of veterinary medicine and surgery, who, when they have gone out into the world to practise their profession, have displayed such utter ignorance of the animals that they have to examine and treat, and of the ordinary every-day requirements of a veterinary surgeon, that they have not only brought the profession to which they belong into disrepute, but have themselves been disappointed at their own want of success. And so it is thought that twelve months' pupilage will do away with all this, and give to the student that amount of practical information which will enable him to practise the profession with credit to himself and benefit to his employers. But, gentlemen, I have grave doubts that this will not work, that it will be found to be a fallacy, that twelve months' compulsory pupilage

will not enable the R.C.V.S. to turn out any better men than heretofore. Well, then, you will say, how would you meet the difficulty which you admit exists? Gentlemen, no fresh bye-law was or is required. The examiners have the matter entirely in their own hands. Let the practical examination be of such a searching nature (and there are no difficulties in the way of carrying it out that I see) that they can with a clear conscience affix their names to the diploma, and certify that Mr. So-and-so is fitted to practise as a veterinary surgeon. And furthermore, gentlemen, if a student has attended the required course of lectures and dissections, and can satisfy the examiners of his proficiency both theoretically and practically, I cannot understand what business it is of any one's where he obtained his practical knowledge, so long as he proves to their satisfaction that he has it.

The next question to which I wish to direct your attention is the penal clause. It is proposed that an Act shall be introduced into Parliament making it a penal offence for any unqualified person to use the title of veterinary surgeon; and, in proof that our profession has made out their claim, the Government have adopted the Bill as their own. I believe the members of the profession are almost unanimous in their desire that this should be carried out—that the title they have by study and examination obtained should be theirs, and theirs alone; and although one of the most distinguished members of this Association, for whose opinion I have every respect, has both by his voice and pen done all in his power to oppose it, yet I believe he is almost in a minority of one. The principal reason he advances is that the profession is not yet fitted for it. This, gentlemen, I altogether deny. Is there a single profession or calling in which all its members are agreed in their opinions, or in which there are no black sheep? Not one, from the clergyman downwards; and certain I am that there are in the veterinary profession at the present time numbers of men whose scientific and professional attainments are of such a high order that they would be a credit to any profession. The charter of incorporation, which was obtained in the year 1843, distinctly states that the members of the said body corporate shall be exclusively and individually known and distinguished by the name and title of veterinary surgeons, but omits to inflict any penalty on any unqualified person using it, thus rendering the clause of no effect. For myself, I quite think that this omission was an oversight, and it is this oversight on the part of the framers of the original charter that the present Act is sought to remedy. If there was a convincing reason required why the penal clause should be obtained, I think a case in which my friend Mr. H. Peele was engaged, that came before the police-court at Hartlepool a few weeks since, would furnish that reason. A man called Richard Harvey, a quack, and of whom one of the justices remarked, "You might as well call a butcher," publicly stated that a diploma was not necessary for a veterinary surgeon, that he was duly and legally qualified to practise as a veterinary surgeon, etc. After a statement of that kind, made by a man who has no right whatever to the title, I cannot but think that even my friend Mr. Stephenson will acknowledge that there is some necessity for the title to be protected.

Before concluding I must remind you that a Congress of veterinary surgeons is proposed to be held in London, in July. This I hope and believe will mark a distinct era in our profession. It will tend more than anything has done in recent years to bring the profession and its claims before the public. It is decidedly a step in the right direction. I would express a hope that the meeting may be a successful one; that, once held, means may be taken to establish it as a permanent institution, to be held annually in some of the large towns in Great Britain or Ireland. I trust that every member of this Association will make a point of attending.

And now, gentlemen, in conclusion, if we wish well to the profession we have adopted, if we wish to see the members of it take that position which they have a right to amongst the educated men of the day, it must be by each one of us striving to promote its best interest by every means in our power both publicly and privately—by so conducting ourselves in every capacity in life that the world shall be compelled to acknowledge that we are not only professional men, but, above all, gentlemen. Petty jealousies will occasionally arise amongst us in the great struggle to live, but we should strive to avoid anything and everything likely to give offence or hurt the feelings of a professional brother. It is at such meetings as this that we get to know one another more intimately, and ill feelings are replaced by respect and regard. (Applause.)

Professor WALLEY then delivered an exhaustive address on "Blood-clotting in the Heart, Arteries, and Veins; Thrombism, and Embolism." He referred first to Thrombosis, pointing out that it might be either false or true. After showing the difference between the false and true, and explaining how a false thrombus led to a true one, he went on to show the predisposing causes of Thrombosis, which were numerous. Amongst these were Pulmonary Congestion, Lung Disease and consequent imperfect oxydation of the blood, and Brain Disease where the nervous functions were interfered with. Anything which tended to produce blood-clotting was a predisposing cause of Thrombosis. Other causes were the positions of the blood-vessels themselves with relation to gravity. The more pendulous a vessel was, the less support it obtained from the surrounding tissues, and the more likely it was to become subject to Thrombosis. Another great predisposing cause was weakening of the heart's action. The blood is thereby slowed, and is the more likely to become stagnant and clotted. The want of cardiac power was the great actual cause of Thrombosis.

The speaker then described in detail the origin and growth of Thrombosis in the veins, showing the process of formation as resulting from a number of causes.

He said the process of Embolism might be totally independent of the process of Thrombism, but, as a rule, it was due largely to Thrombosis in the first instance. He explained how this was, and gave a most interesting description of the formation of emboli, the places where they were usually located, their effects upon the animal, and the mode of treatment.

Professor Walley, in his illustrations of the subject, referred, first, to a case of general Thrombosis, liver, kidneys, etc., in a cow, due to absorption of uterine fluids after parturition, occurring in the practice of Mr. Fairbairn, of Alnwick; second, exhibited specimens of Thrombosis of the superficial inguinal veins, in one case associated with Glanders, in the other with chronic Œdema and thickening of the sheath; third, exhibited a specimen (forwarded by Mr. Summers, of Sidmouth), showing complete occlusion of the cœliac axis as result of Parasitic Thrombism; fourth, a specimen of aorta and iliacs, with occlusion of one external and one internal iliac, occurring in the practice of Mr. Stanley, of Warwick; with several other important specimens of Thrombosis in other vessels and in the heart.

At the close of his address the Professor was very heartily applauded, but discussion on the matter was adjourned until the next meeting of the Association.

A hearty vote of thanks was passed to Professor Walley and the Chairman, and the meeting ended.

Afterwards the company sat down to a sumptuous dinner in the hotel, the President in the chair. After the removal of the cloth, the customary loyal toasts were given and responded to. GEORGE ELPHICK, *Secretary.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held on 18th May, in the London Hotel, Edinburgh; Professor Baird occupying the chair, which he ultimately vacated in favour of Professor M'Fadyean, who, after ably discharging the duties of secretary and treasurer, has now been appointed president.

Mr. Young, East Calder, who had been elected secretary and treasurer at last meeting, being unavoidably absent, Mr. Cunningham, Slateford, acted as *interim* secretary.

The Royal College and the Apprenticeship Clause.

Mr. RUTHERFORD, who had a motion standing in his name on the above subject, begged to move it now, although he feared it was too late to be of much service. His motion was to the effect that the Association express their disapproval of the action of the Royal College in seeking to enforce an apprenticeship clause with regard to students presenting themselves for examination. He submitted that the only proper way of testing the sufficiency of a student's practical knowledge was by increasing the severity of the clinical examinations.

Mr. CUNNINGHAM seconded the motion, and corroborated Mr. Rutherford's statements from his own experience as an examiner in anatomy.

Professors BAIRD and M'FADYEAN having expressed concurrence, the motion was adopted.

The National Veterinary Congress.

Mr. RUTHERFORD moved that, in consequence of the action taken by the Central Committee of the British National Veterinary Congress of London in regard to members of the Highland and Agricultural Society who were practising as veterinary surgeons, they ought to withdraw from that Congress their promised support. Having alluded to the surprise occasioned by the action of the promoters of the Congress in endeavouring to make the Congress consist solely of members of the Royal College, all others being allowed to attend merely by invitation, Mr. Rutherford characterised it as a most illiberal proceeding, and one that cast an impertinent slur on gentlemen admitted to the profession by the gate of the Highland Society. Many of them held the double qualification of members of the Royal College in addition to their Highland Society membership, but considering the slur to which he had alluded, any holder of a Highland Society certificate would, by countenancing the Congress, be insulting a body which gave him the means of earning his bread.

Mr. REEKIE, V.S., Edinburgh, seconded the motion.

Professor BAIRD had supported the proposed Congress in the first instance, but considering the narrow-mindedness displayed, he was now disposed to regard it in quite a different light.

Professor M'FADYEAN thought undue importance had been given to this Congress. It was merely the conception of two or three juveniles who had exhibited an amount of prejudice and narrow-mindedness which was usually associated with ignorance. (Hear, hear.) The action of the promoters had, he believed, excited the indignation of professional men on both sides of the Border.

The motion was adopted.

The Proposed Bill to Protect the Title "V.S."

Professor BAIRD, in reference to the Bill which the Council of the Royal College contemplate getting introduced into Parliament, moved "That the members of this Association recognise the importance of the step taken by

the Council of the Royal College of Veterinary Surgeons to obtain protection for the title of V.S., and they pledge themselves to assist the Council in carrying out the measure by every means in their power."

Mr. RUTHERFORD had pleasure in seconding the motion, with an addendum to the effect that the term "veterinary" in business belonged exclusively to the veterinary surgeon, and that the prosecution should extend to farriers and all others who, by means of a veterinary forge or otherwise, sought to trench on the legitimate ground of the professional practitioner.

Mr. CUNNINGHAM supported this view, believing that they should at all events endeavour to get such a clause introduced.

The CHAIRMAN doubted whether they could claim a monopoly of the word "veterinary."

Principal WALLEY admitted that there might be a difficulty in appropriating a word accepted in different senses, but at all events he thought there could be no harm in making the attempt.

The motion was agreed to.

The late Mr. Waugh, V.S., Stirling.

On the motion of Principal WALLEY, seconded by Mr. CUNNINGHAM, it was resolved to transmit a vote of condolence to the widow of the late Mr. Waugh, Stirling, who, as a member of the Association, took a lively interest in all that concerned its welfare.

Interesting Cases.

Principal WALLEY submitted the following notes of cases presenting features worthy of attention :—

Universal Dermatitis with Scleroderma as the result of Parasitic Irritation in a Bull.—Subject, a two-years-old shorthorn bull, which, when the attention of Mr. Kettle, of Market Drayton, was directed to it, was found to be extremely stunted in growth, but otherwise healthy, the skin being covered (with the exception of some healthy areas of a few inches in extent) by oyster-like masses of epidermis from the tips of the ears to the feet. In the healthy areas myriads of lice were discovered, the epidermic proliferation progressing in a zonary manner, and gradually, as it were, depriving the parasites of their last refuge. Mr. Kettle advised immediate slaughter of the animal, which was carried out, Mr. Kettle kindly sending on the skin, a portion of which was now exhibited for inspection. The skin in parts was intensely inflamed and thickened, and the masses (in some places an inch to an inch and a half in thickness) of superimposed layers of epidermis, presented the characteristic appearance of molluscum keratoma or keloid, but were much less horny in texture than the latter.

Multiple Dermatoid Testicular Cysts in a Colt.—This was the testicle of a colt (monorchid) removed by Mr. Harrison, of Penrith. On examining the organ after removal, Mr. Harrison observed something peculiar about it, and cutting into it discovered its true character. Principal Walley, directing attention to this feature, said : You will observe numerous cysts, small in size, in its structure, two only contain hair—which is white in colour, rolled into coils, and mixed with sebaceous matter—the remainder containing a thick semi-transparent mucous-like fluid. At one point a distinct small mass of osseous matter exists. The specimen is, though not quite unique, a remarkable one.

Specimens of the "Tear Drop" or "Round" Worm from the Eye of the Horse (Filaria lachrymarum).—These worms, which are not often seen in Great Britain, are well known on the Continent. The specimens were forwarded by Mr. Summers, M.R.C.V.S., of Sidmouth, who states : "While I was examining the eyes of a horse suffering from rheumatic influenza, I discovered something moving on the surface of the conjunctiva, and on remov-

ing it with my finger at once detected its nature. Since this case occurred, I was asked to attend another horse suffering from Lymphangitis with considerable tumefaction of the eyelids, and on examining the conjunctiva discovered a number of the parasites in each eye, and at once removed them." The co-existence of these parasites with the swelled leg points to a probable cause of the latter, viz., the presence of filariæ in the lymphatic glands and vessels of the limb, as recently a case was recorded in one of the medical journals of a man who suffered from an enormously enlarged and thickened condition of the scrotum with effusion of lymph from the surface of the skin, microscopical examination demonstrating the presence of embryonic filariæ; and on the subsequent removal of the scrotum with the knife, a mature worm was extracted from one of the lymphatics. The treatment of the "tear drop" worm is simple, and after their destruction the conjunctival inflammation quickly subsides.

Thrombosis of an Artery as the Result of Irritation by Parasites (*Strongylus armatus*).—Also forwarded by Mr. Summers, who obtained the specimen from the abdomen of a two-years-old colt which had died from the effects of an injury. The artery was the cœliac axis, and on opening the posterior aorta, Mr. Summers discovered other parasites in its interior. The points of interest in this case were (*a*) the complete occlusion of the artery, (*b*) the number of strongyles embedded in the clot, from the cut surface of which they protruded in every direction.

Mr. ALEX. GREY, jun., M.R.C.V.S., of Dick's Royal Veterinary College, read an interesting paper, which was illustrated by microscopical preparations.*

HIGHLAND AND AGRICULTURAL SOCIETY.

AT the meeting of this Society held at Edinburgh on June 15th, Professor MacFadyean, in moving that the Society petition against clause 3 of the Veterinary Surgeons Bill, stated that, in order to explain the full force of the clause, he would read it with the preamble. The preamble began by stating —"Whereas it is expedient that provision be made to enable persons requiring the aid of a veterinary surgeon for the cure or prevention of diseases in or injuries to horses and other animals, to distinguish between qualified and unqualified practitioners, be it therefore enacted," etc. Then clause 3 of the Bill ran thus—"On and after the first day of October, one thousand eight hundred and eighty-one, a person shall not be entitled to take or use the name or title of veterinary surgeon, or veterinary practitioner, or any other name, title, addition, or description, implying that he is a member of the Royal College of Veterinary Surgeons, or is otherwise qualified to practise, or is a practitioner of veterinary surgery, unless he is registered as a member of the said Royal College."

The Bill thus sought to obtain exclusive privileges for the members of the Royal College of Veterinary Surgeons. It declared by implication that those who practised on the strength of the certificate granted by this Society were in no sense qualified practitioners. That was surely a most anomalous thing, as the Royal College was not called into existence until twenty years after this Society had instituted its veterinary examinations. It might be supposed also that the graduates of this Society had received an inferior education and undergone an examination less rigorously conducted. That, however, was not the case; and the period of study required by this Society had always been the period required by the Royal College. One sought in vain for any reason or explanation why the clause stood as it was. There was one thing he could conceive some one advancing as an apology for the clause in its present form. It was true that a few years ago an agreement was entered into between this Society and the Royal College, under which

* This will appear in the Journal for August.

graduates of the Society might be enrolled and registered as members of the Royal College of Veterinary Surgeons on immediate payment of a fee without any examination. But it seemed to him that that was a powerful argument against the clause, because by coming to that agreement the Royal College of Veterinary Surgeons accepted the degree of the Highland Society as sufficient proof of education equal to what it desired from its own graduates, and admitted that the holder was qualified for practising the veterinary art. But, further than that, the agreement was never intended to be anything else than permissive. By this measure it was sought to make it compulsory. It was true that a considerable number of graduates had thought it expedient to take advantage of that agreement, but a considerable number also—he thought a great number—maintained that no higher qualification was obtainable in this country than the veterinary certificate of this Society. They refused to be admitted to the Royal College by what some considered was a back-door entrance. If the Bill became law, it would be put into operation against those gentlemen, and should the Society not take any action on the matter these graduates would feel as if the Society had deserted them. The past history of the Society in its attitude towards the veterinary students had been one of unvaried beneficence, and to stand idly by and see this injustice done and indignity put upon its graduates, would be to a large extent to vitiate its own past conduct. He therefore begged to move—"That this meeting transmit a memorial, signed by its chairman, petitioning Parliament to amend the Veterinary Surgeons Bill, as follows—viz., to insert after clause 3 the words 'or holds the veterinary certificate of the Highland and Agricultural Society of Scotland.'"

Professor BALFOUR seconded the motion. He thought this another instance of the desire there was in England for the centralising of affairs in London, and said that if this proposal was to take away the position of those holding the degrees of the Society, they ought decidedly to set their faces against it.

The Hon. GEORGE WALDEGRAVE LESLIE asked who brought the Bill into Parliament—was it in connection with the Privy Council, or was it a matter of the Royal College only?

Mr. MENZIES stated that it was brought in by Lord Aberdare.

Sir GRAHAM MONTGOMERY suggested that the Society, in petitioning against the clause, should make Scotch members aware of the state of the case, and that the Secretary should get some member to put a notice on the paper to move the rejection of the clause when the Bill went into Committee, otherwise the Bill might slip through at some early hour in the morning, and they would lose the opportunity of getting the clause amended.

The motion was agreed to.

Army Veterinary Department.

WE have reason to believe that it is in contemplation by the military authorities, to give a step of honorary rank to deserving veterinary officers retiring from the service.

The annual dinner of the officers of the Army Veterinary Department took place at the Criterion Restaurant, London, on June 17th. There were present J. Collins, P.V.S. (who occupied the chair), T. P. Gudgin, G. Fleming, D. J. Hinge, J. J. Meyrick, G. A. Oliphant, W. B. Walters, J. Anderson, W. Burt, F. Walker, F. F. Marshall, C. Percivall, J. A. Rostron, E. T. Cheesman, J. C. Dwyer, F. C. Boulter, S. R. Sartin, S. L. Pallin, F. Garratt, H. Thomson, J. Matthews, J. P. Adams, F. F. Crawford, W. B. Spooner, J. Cooper, J. H. Steel, E. H. Kelly, E. E. Bennett, J. Gibbs (on half-pay).

Obituary.

WE have to record the death, on June 11th, at the age of seventy years, of Thomas George Webb, M.R.C.V.S., of Epping, Essex, late of Bishops Stortford, Herts. He graduated in 1850.

The demise is also reported of William Marno, M.R.C.V.S., Keith, Banffshire, a graduate of 1867, who appears to have met his death while driving on his round of visits, his body being found on the road. Disease of the heart is supposed to be the cause. A local paper makes the following remarks on his personal character:—"Mr. Marno came to Keith and began to practise as a veterinary surgeon in 1857, since which time he has made many friends, but never made an enemy. He was admired by all for his kindliness of heart and disposition. Any one in distress or trouble could appeal to him for help with the utmost confidence, as his sympathy always found expression in a thoroughly practical way. He helped many to tide over difficulties when times were hard, who on hearing of his untimely death have declared that they have lost a 'friend indeed, as to many he was the friend in need.' His hospitality was almost proverbial, and his uniform straightforwardness in doing business was such that he retained the entire confidence of all with whom he came in contact in this way."

Parliamentary Intelligence.

House of Lords, May 31st.

THE VETERINARY SURGEONS' BILL.—Lord ABERDARE moved the second reading of this Bill, and explained that its object was to prevent the assumption of the title by unqualified men, and to subject to a fine of £20 any persons practising as veterinary surgeons without becoming graduates of the Royal College of Veterinary Surgeons. The Bill, he observed, was for the protection alike of the veterinary profession, of animals, and of their owners. He spoke of the present position of the veterinary profession in these kingdoms, and of its claims to consideration. The Bill was not intended to interfere with persons who acted as farriers, or treated cattle without professing to be veterinary surgeons.

Earl SPENCER thought the principle of the Bill excellent, and would give it his cordial support. He considered it a very important measure, and that it was most desirable to improve the position of veterinary surgeons, as anything which would raise their *status* would have beneficial results for the public. He alluded to their value during the prevalence of contagious diseases among animals, and on other occasions. There were in many parts of the country a great deficiency of qualified veterinary surgeons, especially at a time when there were so many infectious diseases among cattle, and in his opinion such a measure would greatly benefit the farmer. He thought, however, some of the clauses were too restrictive, and required to be qualified or amended in Committee. If Lord Aberdare would consent to this, he would do all he could to support the Bill.

The Duke of MARLBOROUGH thought it would be a very sweeping enactment to say that no person should call himself a veterinary surgeon who had not been educated at the Royal College of Veterinary Surgeons of London. He could not understand why the students of the London college were alone to be protected, and the students of the Highland and Agricultural Society and other colleges omitted. He thought it would be necessary to make important amendments.

Lord ABERDARE explained that the certificate-holders of the Highland and Agricultural Society were eligible for registration as members of the veterinary profession, and quoted the special Charter of the Royal College of Veterinary Surgeons to that effect.

The Marquis of SALISBURY thought it would be going too far to rule that no one should call himself a veterinary surgeon without passing the Royal Veterinary College. There were the graduates of the Scottish Metropolitan Veterinary Medical Association, and the Gayfield Veterinary College to be considered. The Bill must be amended to meet these cases.

Lord ABERDARE intimated his desire to meet the views of Earl SPENCER.

The Bill was read a second time.

House of Lords, June 23rd.

VETERINARY SURGEONS' BILL.—On the motion of Lord ABERDARE, the House went into Committee on this Bill, the Earl of Redesdale in the chair.

Earl SPENCER said he had important amendments to move in the Bill. He would not move them now, but on the report after it had been printed.

The Bill passed through Committee.

House of Lords, June 28th.

THE VETERINARY SURGEONS' BILL.—The House went into Committee on this Bill—the Earl of REDESDALE in the Chair.

After Clause 5, the Earl of CAMPERDOWN proposed a new clause, to the effect that the Royal College of Veterinary Surgeons in Scotland should be compelled to hold examinations of all students in veterinary surgery at the colleges in that country.

Lord ABERDARE had no objection to the clause. The practice had been to hold these examinations under certain bye-laws, but they would, after the passing of this Bill, be compulsory under statute.

The clause was added to the Bill.

On Clause 14, the Marquis of SALISBURY proposed that the period of practice which should qualify a man to exercise the profession of veterinary surgeon without examination, should be reduced from five years to three years.

Lord ABERDARE said that the object of the Bill was to prevent persons from practising who were utterly unfitted to do so. Many suggestions had been made to him, and some persons thought that five or even ten years' practice should be required.

Earl SPENCER thought five years ought to be retained, though he had no great objection to the proposal of the noble marquis.

The amendment was then agreed to.

Lord ABERDARE proposed a new clause for the purpose of exempting all veterinary surgeons who had been placed on the register from serving on juries and other public offices, in the same manner as dentists were exempted. The noble lord contended that as the services of veterinary surgeons were urgently required, they should not be obliged to attend as jurors at the assizes and quarter sessions, or be called upon to serve on local boards and in other public departments.

The Lord CHANCELLOR said he was sorry to differ in opinion on this subject with his noble friend, but he hoped this amendment would be not agreed to. The number of exemptions led now to much inconvenience, as all those who had to attend the assizes and quarter sessions well knew. Besides, a judge had always the power to excuse any person from serving on the jury if it were shown that his services were required on an important matter. He greatly objected to all veterinary surgeons who were well qualified to serve as jurors being exempted by statute.

Lord DENMAN supported the amendment, on the ground that it was important to have the services of a veterinary surgeon the first moment he was sent for.

Lord ABERDARE said that in some counties it was the practice not to summon veterinary surgeons to serve on any jury, but in other counties they were required to serve. It would be only reasonable that the law and practice should be uniform.

The House divided—Contents	... ...	32
Non-contents	... ...	51
Majority	... ...	19

The clause was therefore rejected.

The other clauses, some verbally amended, were agreed to, and the House resumed.

Correspondence, etc.

THE ARMY VETERINARY SCHOOL.

DEAR SIR,—From what I have read concerning the Army Veterinary School in your Journal for April and May, I think it will have a tendency to encourage quackery. A little knowledge is dangerous with some people. Even without any teaching, we find farrier-majors, tramps, etc., calling themselves veterinary surgeons. I am sure the majority of men who attend the lectures given at the Army Veterinary School will have more confidence in themselves, and after leaving the service will, no doubt, injure civil veterinary surgeons. The men who employ them will have a better opinion of their ability, from their having attended lectures; while the superficial knowledge which they will possess, combined with an obscene yarn and a drink together, will be quite sufficient to gain the approbation of the better half of some veterinary surgeons' clients. I know of farrier-majors, etc., occupying situations that qualified veterinary surgeons of ability, who have sunk their capital in obtaining their diploma, would be glad to take. Even one of the greatest peers in this country employs a farrier-major to attend as a veterinary surgeon upon his valuable stud. I don't think it is any criterion to go by that those trained Army veterinary nurses won't injure the veterinary profession, because trained nurses of the human being don't interfere with the practice of a human surgeon. Veterinary surgeons are not on the same footing as human surgeons. If such were the case, there would be little fear of Army veterinary nurses annoying us. Any man can call himself a veterinary surgeon. Even if the Veterinary Surgeons' Bill passes, unqualified men are still at liberty to practise. If anything exists that will be of interest to a few veterinary surgeons, and likely to injure another class, I think it is the duty of the injured ones to try and protect themselves.

I am, dear sir, yours truly,

"VERAX."

DEAR SIR,—Will you kindly allow me a small space in your Journal to convey my best thanks to Messrs. Walters and Lawson for their kind interest in my last letter, and also for the pains taken to allay my fears regarding the Army Veterinary School?

I have no wish to engage in a paper war, which too often ends in personal recriminations. But I cannot pass the two letters penned by these gentlemen without comment on one or two of their remarks. I am bound to admit my stock of information on this subject has been added to by their kindness, but at the same time I am in no way convinced that this School is for good, and the many assurances I have received from gentlemen of our profession, both military and civil, confirms the opinion that my views are largely shared in by others.

Mr. Walters infers that farriers trained by two months' instruction will do us no more harm than trained nurses do human practitioners; but we must not forget that surgeons and physicians are protected by law in a very different way from what we are. It is almost impossible for an empiric to trespass far on their grounds, whilst we have no protection beyond that which superior ability gives us. But there is a curious discrepancy in this

part of Mr. Walters' letter, for on the one hand he declares the School cannot sufficiently educate a farrier to "compete or injure the regular practitioner," and following on this he says in outlying districts the farriers have to act as veterinary surgeons in the management "of sick and lame horses." Now if a farrier is first taught in the School, receives a certificate, takes the veterinary charge of a detachment of valuable Government cavalry horses, will he not feel himself competent when he leaves the army to set himself up as a respectable quack? Many men are known to me who have done so on much less qualification, but humanity alone demands us to set our faces against such proceedings. I quite agree with Mr. Lawson in thinking "a little knowledge is a dangerous thing," and if the two months' teaching the Army Veterinary School gives does not provide just that amount, my fears are groundless.

Yours faithfully,

May 14th, 1881. WILLIAM PENHALE.

A VOICE FROM THE ARMY VETERINARY DEPARTMENT.

DEAR MR. EDITOR,—I hope you won't vote me a nuisance if I occasionally trouble you for space in your valuable Journal for a bit of a grumble, there being times when I feel compelled to give vent to my accumulated feelings of disgust.

Like your correspondent "Pferd," in the April Number, I, too, have been looking for results from that committee meeting, but so far I have looked in vain, and the conclusion I have arrived at is this, "that in many respects our department is an unfortunate one;" but I hope to outlive these bad times, and come in for a ripe cherry in the end.

As an example of what we have to submit to, take the subject of promotion in the junior ranks, and we find that a veterinary surgeon has to wait twelve years for his first step. Why twelve, I wonder? for in the Royal Artillery, where so many of us serve, lieutenants of ten years' service are being promoted to the rank of captain. Army medical officers, *on being commissioned*, rank as captains: *these have progressed; we have retrograded.* Now this has been a sore point with us ever since 1878, and yet there is no appearance of improvement, and why? Because we are not half the men for ourselves that we ought to be. If we don't let our wishes be known, how can they ever be acceded to? Why have the medical men got *all they* wanted? Simply because they asked for it, and knew how they must act as a united body in order to get it. Note what they have got by the Warrant of 1879:—

A surgeon on joining	... ...	£200 per annum.
„ after 5 years' service	...	250 „
„ „ 10 „ „	...	273 15 „

Promotion after 12 years' service, £1 per diem.

See also what the Naval medical men have got, only just the other day:—

	s.	d.		£	s.	d.	
A surgeon on entry ...	16	6	per diem, =	209	17	6	per annum.
„ after 4 years	13	6	„ =	246	7	6	„
„ „ 8 „	15	6	„ =	282	17	6	„

Promotion at 12 years, £1 1s. per diem.

I have just dotted down these items, in order to expose in a small way the vast difference there is between the illiberal terms of our Warrant, and the very liberal manner in which the medical officers of *both* services are treated; but I would advise a perusal of both medical Warrants by every one: they are published in the *Lancet*, which can be got from any doctor. If I dare make a suggestion to the authorities, I should say, Throw our one overboard, and draft a new one on the lines of either medical one.

I might also state that Army medical men can retire on a gratuity at ten, fifteen, and eighteen years' service; and Naval men at eight, twelve, and sixteen: this I consider a great boon. Can we, in the face of all this, sit by idle? I hope not; then let each bestir himself, and study how he can best do his little (or much, as the case may be) for the good of the department. I consider that "old Warrant" men under the rank of first class have the greatest grievance, inasmuch as they are not on even terms, as regards pay, with the youngest probationer until they have served ten years. This is not the manner in which men of other departments are treated by new Warrants, yet why should it be so with us? I will venture to predict that, before that excellent measure—thanks to you, Mr. Editor, for it—the Pupilage Clause shall have been long at work, we shall find the ranks very thin, unless the Treasury comes to the rescue.

Only the other day an officer told me he was about to send his son to the Veterinary College, with a view to his eventually joining the Army Veterinary Department; but the Pupilage Clause was just then passed, and so he gave up all idea of his original intention. I was very sorry to hear this, because we want more of that class of officer among us; but in it we have an instance of the effect of that long-looked-for clause *already*.*

It is really distressing to hear the wail of *every* member of the department whom one happens to meet. Some there are who have little private grievances, but all have one in common anent the Warrant of 1878. I was only yesterday reading the articles of it, referring to pay and retirement, to a member of the Medical Department, and he was simply surprised to learn how much of a gap there will be between his and my pay at twelve years' service, even supposing I am lucky enough to get first class then; but when I got to the retiring allowances he said he could not have believed it. "Why," he said, "I shall get £1 a day at twelve years' service, whereas *your best will only be sixteen shillings*, then at twenty years' service I can retire on £1 a day, while you may *only get nine shillings*." (See Article 20 of Warrant.) I saw it all too truly. It is certainly rather ambiguous to read in Article 18 that one has a *right* to retire at twenty years' service; but almost in the same breath to learn, from number 20, that if one does so *for one's own convenience*, the allowance will be *cut*, so to speak, so as *not to exceed* one half of the daily rate of pay. I should like to know how much less (than the half) could be sanctioned under this article. There is no hiding of the fact that our Warrant requires overhauling *very much*, and in saying so I know I am

* Some time ago an officer of the Indian Army called upon us, to consult with reference to his son, whom he wished to enter the profession with a view to joining the Army. The lad's education, we were informed, had been very much neglected, and the lad himself was a dull learner; he had never been among animals—in fact, had been at school all his life. The father confessed that as ours was the cheapest and easiest profession to enter, it was the one for his son; as it needed but little money or mental or physical training. He was startled when told that it was necessary to possess some ability to practise veterinary medicine, and that a candidate for the profession should not only know something of animals, but should also be able to manage and handle them, and for this purpose should receive a special training with a veterinary surgeon for some time, either before going to college or during his collegiate course, and that the Royal College had thought it necessary to enforce a period of pupilage. Finding more brains were needed than he imagined, also more time and money, before a diploma could be granted, and also that a somewhat severe examination had to be undergone for admission to the Army Veterinary Department, this officer resolved to try his son at something in which he was more likely to be successful, and at which less money and brains would be needed for initiation.

We require something better than men who are mentally or physically unfit for every occupation, or who will not undergo training, be they officers' or other people's sons.—Ed. *V. J.*

only echoing the sentiments of a great many (perhaps every) members of the department; and would they speak out, you should soon have proof to the full and to spare.

But I fancy I hear some one say, "Oh, the new Warrant is working splendidly! We have got an average of over eight young officers yearly since its promulgation, and can afford to reject fifty per cent. of the applicants." Yes, and was not the same said of its counterpart, the medical one of 1876? yet see what an utter failure it proved in the end. I say that £250 a year *is* very good, but out of some twenty-five or twenty-six, only five, I think, are enjoying it; the remainder are drawing rupees 377½ in this country (the Indian pay of twenty years ago), because the Indian Government hardly recognized the Warrant under which they joined; and when these gentlemen discover the *real* meaning of, "Every year a number of veterinary surgeons *not exceeding four shall be retained in the service*" (in 1888 seven must go, provided there are no deaths or retirements among the eleven who joined in 1878), I expect they would not advise their greatest enemies to join the department under such circumstances. It is *one* thing to be *allowed* to retire, receiving a gratuity, but quite another to be *compelled* to go.

Apologizing for having occupied so much of your valuable space with this erratic effusion, I remain, dear sir, yours truly,

15*th May*, 1881. (*Late*) R.H.A.

AMPUTATION OF LAMBS' TAILS.

SIR,—In an appended note in the Journal for June, the opinion of the profession regarding the amputation of lambs' tails is elicited.

Living as I do in the midst of an extensive sheep district, I have ventured to give my opinion and answers to three queries in the paragraph on the subject of docking lambs. I may, however, mention that the operation is performed when the lambs are about five weeks old. At that age the tup lambs are castrated, and the ewe lambs docked. The docking is chiefly confined to sheep grazed on low lands, the breed of Leicester and half-bred sheep. Hill sheep, including the breeds of black-faced and Cheviot, are seldom docked. In answer to the three queries asked in the note, I beg to give the following:—

1st. The docking of lambs' tails is most advantageous, and indeed, in the artificial way in which sheep are kept and fed, absolutely necessary.

2nd. Cleanliness is maintained greatly by docking, and very much less danger from maggot is sustained.

3rd. I have myself operated on many hundred lambs, and never knew of any instance of maladies of the generative organs arising from docking. It is also my experience, as well as that of many practical sheep-farmers, that they do not arise from such a practice.

Balloan, Beauly, N.B., 13*th June*, 1881. ALEX. GUNN, V.S.

ROYAL VETERINARY COLLEGE STUDENTS.

SIR,—I have noticed an advertisement, which has frequently appeared in the *Veterinarian*, to this effect:—"List of Veterinary Surgeons; published for free distribution under the Provisions of the Royal Charter of Incorporation. A list of veterinary surgeons (Members of the Royal College of Veterinary Surgeons), former students of the Royal Veterinary College." There are many things that a man may do with perfect legality, but still which may be of questionable taste; and I think that the publication of this list is one of them. It appears to me that when any person has passed his examination and obtained the diploma of the Royal College of Veterinary Surgeons, it is a matter of no consequence to the public as to which institution he has received his instruction at, as these are all supposed to be on the

same level. I do not think I should be far wrong if I said that there are very few of the general public who can tell the difference between the Royal Veterinary College and the Royal College of Veterinary Surgeons. We will suppose a case of a young man commencing practice in a neighbourhood where he is not known, and where some of the public are in possession of the list before mentioned. The first thing they do is to look in this list, when, if he has not graduated at the Royal Veterinary College, his name will not appear, and this with some would be prejudicial to his interests. Besides, this list is for free distribution, whereas the register of the Royal College of Veterinary Surgeons is not. Let any person take the trouble to look through the register and he will find that some of the best men, and some of the most distinguished, have graduated at the Scotch colleges. Take, for instance, General Sir F. W. Fitzwygram, J. Collins, F. F. Collins, G. Fleming, F. Dun, Professors Williams, Robertson, and McCall, besides others too numerous to mention. It would be only fair that the Scotch colleges should circulate a free list, and let the public see that it is possible for a man to be highly distinguished and a first-class veterinary surgeon without their being able to find his name among the "former students of the Royal Veterinary College."

I remain, yours faithfully,

"NEMO."

CORRECTIONS.

At page 401, line 18, of the Journal for June, for "*examination*" substitute "*evacuation.*"

At page 432, line 5, for "*Manwel,*" read "*Manuel.*"
" " 43, " "*Tinnors,*" " "*Timms.*"
" " 43, " "*Crowdan,*" " "*Crowdace.*"
" 433 5, " "*Gennmell,*" " "*Gemmell.*"
" " 26, " "*Jervis,*" " "*Jeves.*"

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from R. Poyser, Carabineers, Sialkote, India; J. C. Berne, A.V.D., Ireland; T. H. Prior, Ireland; "R. H. A.," India; T. Walley, Edinburgh; J. Dowling Allman, London; J. Webb, Bishops Stortford; "Verax"; J. Cook, Liverpool; C. Cunningham, Slateford; G. Elphick, Newcastle-on-Tyne; W. Leather, Liverpool; A. Gunn, Balloan; W. Penhale, Barnstaple; D. Hutcheon, Cape of Good Hope; R. F. Frost, Rangoon; G. Rees, Ash-next-Sandwich; M. Hedley, Dublin; B. W. Kirk, Bakewell; W. H. Steel, A.V.D., Woolwich.

BOOKS AND PAMPHLETS: *A. Zundel,* Der Gesundheitszustand der Hausthiere in Elsass-Lothringen; *C. Siegen,* Dispositions réglant le Commerce des Animaux Domestiques, etc.; Hernie Inguinale Etranglée; Considerations Générales sur les Animaux et les Viandes de Boucherie; Appréciation des Viandes de Boucherie; H. Möller, Grundzuge der Arzneimittelwirkung; *W. Tappe,* Die Aetiologie und Histologie der Schafpocke.

JOURNALS, ETC.: *Œsterreich. Vierteljahr. für Wissenschaft. Veterinärkunde; La Presse Vétérinaire; Revue Vétérinaire; Recueil de Méd. Vétérinaire; Archives Vétérinaires; Journal de Méd. Vétérinaire et de Zootechnie; Der Thierarzt; Wochenschrift für Thierheilkunde und Viehzucht; Mark Lane Express; Lancet; American Veterinary Review; British Medical Journal; La Clinica Veterinaria; Live Stock Journal; Sanitary Journal; American Live Stock Journal; Medical Press and Circular; Annales de Méd. Vétérinaire; Agricultural Gazette; Edinburgh Medical and Surgical Journal; Farmer.*

NEWSPAPERS: *Banffshire Journal; Irish Sportsman; Freeman's Journal; Newcastle Daily Journal; Daily News; Lahore Civil and Military Gazette; Scotsman.*